

MOTOR AGE

Northwest's Big Show At Minneapolis



MINNEAPOLIS, MINN., Feb. 21—Bigger and better in every way than the previous motor car exhibitions, the third annual exposition of the Minneapolis Automobile Show Association opened Saturday in the National Guard armory with an attendance on the first day of 10,000. Minneapolis is now one of the premier motor car markets of the world and for this reason the show held annually in this city has become recognized by manufacturers all over the country. It is known as a great motor car center both from the fact that so many cars are owned and used and also because from its agencies are distributed the motor cars which are used throughout the great northwest. Minneapolis dealers attend it liberally and northwestern dealers and sub-agents of Minneapolis motor car companies come into the city show week to get ideas on changes for the year in car construction, the novelty features and a sight of the makes of cars that are new here.

Many Dealers Attend

Countless dealers and buyers from Minnesota, the two Dakotas and northern Iowa are registered at various dealers' headquarters and a surprising feature of the attendance is that even northern Michigan and states as far west as Portland, Ore., are represented. It is evident that the crowd of eager searchers after information of the 1910 models have the money, and that tremendous sales will result from the show for people are realizing more and more the advantage offered in buying where they can study the different makes and different priced cars side by side in a motor exhibition.

Several features mark the development

which is bringing the industry here up to the same level with that of recognized centers in the east, and the fact that several makes of motor cars, now on exhibition at the armory, have not been sold in the northwest heretofore is regarded as significant in showing the importance with which the large makers look upon the northwest as an outlet for their products.

There are at present about seventy agencies in Minneapolis selling anywhere from one to four different makes of motor cars. Probably 150 of these vehicles, including gasoline and electric-propelled pleasure cars and commercial trucks, are sold through Minneapolis concerns, several of which are distributors for all northwestern states.

It is estimated that nearly \$1,500,000 has been expended here during the last year in buildings alone. In addition improvements and the increasing of floor capacity made necessary by the wonderful increase in the motor car industry have necessitated the expenditure of thousands of dollars. Practically all of the leading American-made cars can now be bought in Minneapolis and the increase in the variety and makes at present on the northwestern market is visibly portrayed by the numerous and complete displays at the motor car show.

Crowded For Space

So many applications were received for space up to a week ago that the management of the show decided to make use of the gymnasium on the lower floor of the armory and that was immediately marked off into booths. The pleasure car, taxicabs, town cars and machines of that sort are shown on the main drill floor of the armory. In the basement are displayed the motor boats,

motors, gasoline engines, motor trucks and delivery wagons with an overflow of the regular cars from the drill room. In the gallery is the usual display of accessories, gasoline tanks and pumps, motor car parts and the latest devices for all styles of motor propulsion vehicles, batteries and magnetos.

One of the features of the show is the first Edison battery ever displayed in the northwest. The Hathaway-Stimpson Co. which handles the Detroit electric, arranged for this display, and it is to prove one of the real novelties of a show which abounds in features in the individual booths. The electric section also is proving popular and an unusually large number of electric motor cars, broughams, victorias, coupes, etc., are on display.

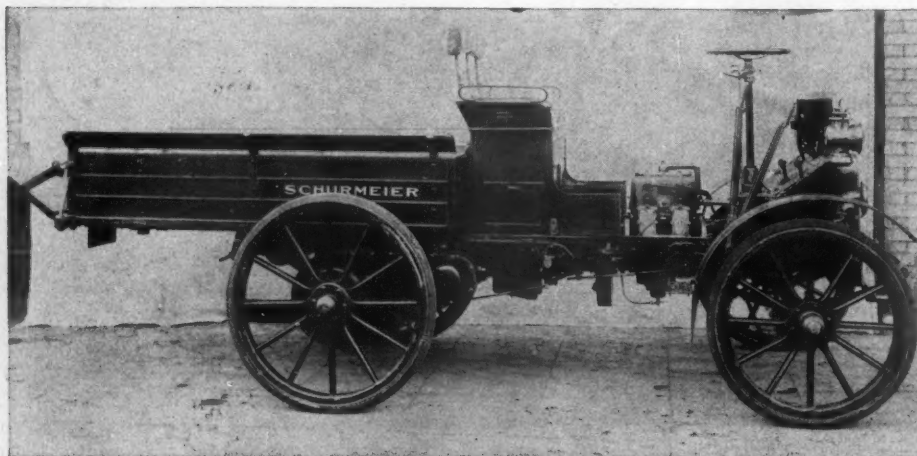
Machines of every style are exhibited at the show, including the new torpedo body displayed by the Goosman-Johnson company in the booth of the Maxwell-Briscoe Minneapolis Co.

Color Scheme of Show

The lighting and decorative features of the show are unusually elaborate. The general color scheme is red, white and blue and it is produced by a lavish use of flags and bunting. The booths and display signs are in blue and white, as well as the huge electric pillars at the head of the aisles. Palms and evergreens in profusion impart a delightful, summery atmosphere.

Schurmeier Commercial Vehicles

The Schurmeier Co., of Minneapolis and St. Paul, builder of horse-drawn vehicles for the past 50 years, has now put on the market three styles of motor-driven commercial vehicles. Model C with a capacity of 1,500 pounds is a very unique and well-designed light commercial car. Its construction is very rigid, extremely simple, and there are no parts on the car but what have a specific function to perform. The motor is a two-cylinder vertical water-cooled two-cycle type. This connects with a jackshaft through a two-speed and reverse sliding gear transmission. Gears are wide-faced and built of $3\frac{1}{2}$ per cent chrome nickel steel, shafts run on Timken roller bearings, every bearing of the jackshaft and transmission is thoroughly covered, and protected from grit or water.



SCHURMEIER TWO-CYCLE LIGHT COMMERCIAL CAR



THE GENERAL SCHEME AND DECORATIONS AT MINNEAPOLIS

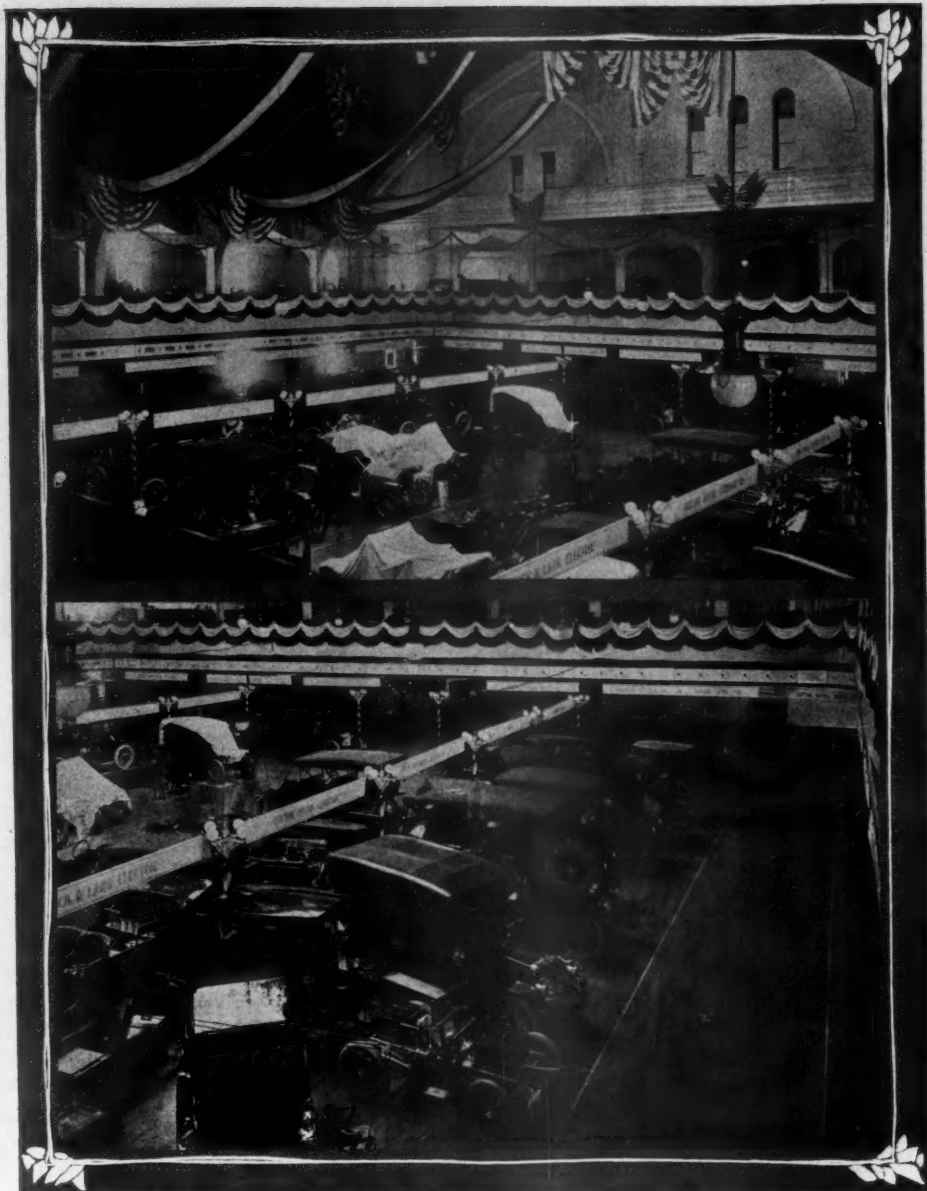
The drive to the rear axle is by side chain of the Whitney roller type. These chains are encased, a commendable feature, which greatly increases the life of the chains.

The rear axle is of square section, and the front is tubular, with drop forged mountings. All four wheels run on Timken

bearings. Front tires are 34 by $3\frac{1}{2}$ -inch solid rubber, and the rear tires are 36 by $3\frac{1}{2}$ -inch. By sliding back the body and seat, the motor can be removed from the chassis with ease. Ignition is by means of a high-tension German magneto which rocks on its base to advance or retard the spark, and the motor is claimed to develop 20 horsepower. The 2 and 3-ton trucks are equipped with a three-cylinder two-cycle motor of the water-cooled vertical type, with the cylinders cast en bloc. Transmission to the rear axle is by means of a three-speed selective sliding gearset and side chains to the rear wheels. Side chains are also encased in this model. The front tires are 36 by 4 and the rear ones 36 by $3\frac{1}{2}$ -inch duals. The 2 and 3-ton models are quite similar in construction, differing only in weight and dimensions.

Wilcox Pleasure Motor Car

In addition to an extensive line of commercial cars manufactured by the H. E. Wilcox Motor Car Co., Minneapolis, Minn., a five-passenger touring car has been brought out this year which is being



TWO GENERAL VIEWS OF MINNEAPOLIS' BIG SHOW

shown for the first time at the Minneapolis show. This car is unique in its simplicity and would have excited considerable interest even at the larger Chicago or New York shows, where almost all that was new was to be seen. The features of the car are the unit construction and three-point suspension of the power plant, which comprises a four-cylinder, L-type, water-cooled motor, a multiple-disk clutch running in oil, and a selective sliding gearset; shaft-drive from the power plant to the semi-floating Timken rear axle, with two universal joints in the driveshaft; I-beam drop forged front axle; 34 by 3½-inch tires, and 115-inch wheelbase. This car is made in two body types, the touring car, and a neat, racy getabout or gentleman's light roadster, with a removable rumble seat.

The most important feature of the car is the marked simplicity of its power plant, which, although equipped with all the necessary paraphernalia, everything has been anticipated and built-in, so to speak, with proper respect for its accessibility,

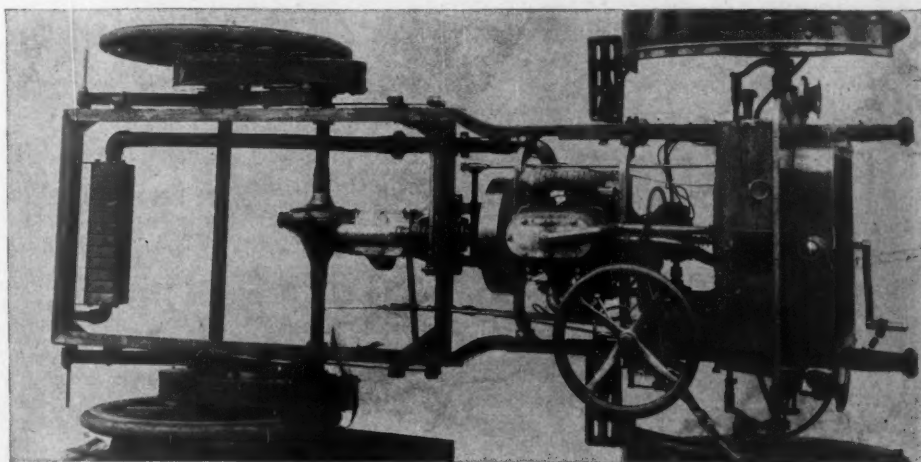
and not stuck on or attached as an afterthought. The intake and exhaust piping is of large proportions, and conveniently attached, with the exhaust arched above the intake to afford easy access to the adjustable valves. Water manifolds are of aluminum, simple and direct, with the

waterjacket caps, which cover almost the entire tops of the cylinder-heads, cast integral with the outlet manifold, thereby reducing the number of connections. The centrifugal gear-driven pump, which together with a vertical, flat-tube radiator and an adjustably mounted belt-driven fan are features of the cooling system, is located in a specially designed recess in the left fore-leg of the engine. By means of a long pumpshaft and a short magneto-shaft, the magneto and the pump are both driven by the same gear, which is enclosed with the rest of the timing gears at the rear end of the motor; the flywheel being located at the front end.

The magneto is a low-tension Splitdorf and the step-up transformer used in connection with it is attached to the frame under the front floor boards in close proximity to the magneto. This greatly simplifies wiring, renders the dash clear of everything but the dual switch, and an oil-fount of the self-contained circulating oiling system. The wiring to the plugs is supported in a fiber tube, priming cups are conveniently placed in the cylinder heads, and the general arrangement of all parts is commendable. The cylinders of the motor are cast in pairs, have a bore and stroke of 4¼ and 5 inches respectively; the crankshaft is of high-carbon heat-treated material supported in three bearings which are ground to size; and the constant level of the splash lubrication is maintained by a gear-driven gear-pump. The frame is of cold rolled pressed steel channel section, dropped in front of the rear axle to give ample clearance for the three-quarter scroll elliptic springs employed in the rear; brakes are of the internal and external type, lined with thermoid, and operated in a conventional manner upon the rear wheel drums, which are of large diameter; and the control mechanism of the entire car is regular, except that the gear-shifting lever is located inside the frame. The bodies are of the straight line type, with a wood frame and metal panels and seats.

Wilcox Commercial Cars

The Wilcox trucks are sturdy, well-built vehicles with a standard L-type, four-cylinder, four-cycle, water-cooled power plant, a



CHASSIS SCHURMEIER DELIVERY WAGON

sliding selective gearset, side-chain drive, Timken front and rear axles, and fitted with any type of body, all bodies being built to order in the Wilcox factory at Minneapolis. These trucks are built with a light and heavy chassis, of 1 and 3 tons' capacity, and the standard types of bodies fitted include: a sixteen-passenger sight-seeing body, a fourteen-passenger hotel bus body and an open-stake type for the light chassis, and open stake bodies for the heavy truck. The general mechanical characteristics of all, however, are quite similar, and a description of the 1-ton truck will suffice to give a general idea of their construction. The motor is a 30-horsepower Continental, with the cylinders in pairs, with integral cylinder heads and valve-chambers, but with separate water-jacketed heads. The crankcase is of rigid and stiff construction, cast from a nickel aluminum alloy, and supported with the gearset on a subframe. The timing-gear case is cast integrally with the crankcase, and all gears run in a bath of oil. The intake and exhaust manifolds are very neat and compact, and so arranged that the valves may be conveniently handled. An adjustable belt-driven fan, a vertical flat-tube radiator, and a centrifugal pump are features of the cooling system.

Ignition is by means of a high-tension Bosch dual system, and the magneto and waterpump are both accessibly mounted on brackets cast integrally with the left side of motor, and driven by means of the same shaft through flexible couplings from the same gear contained with the timing gears in front of the motor. Lubrication of the motor is by means of a constant level splash system with the circulation maintained by a gear-pump, gear-driven off the camshaft. The sump of the oiling system is cast integral with the lower portion of the crankcase. Transmission from the motor is through a leather-faced cone clutch with cork inserts, and a straight-line shaft with two universal joints, to the gearset and differential mechanism, which is housed in one case. From here power is transmitted through the jackshaft, its sprockets and



WILCOX, A NORTHWEST PRODUCT, IN TOURING CAR FORM

through side-chains to the rear wheels.

Timken roller bearings are used throughout the transmission and running-gear, except at the outside bearings of the jackshafts which are plain. The frame is of channel iron, supported on three-quarter platform springs in the rear, elliptics in front, and radius rods are provided for both front and rear axles to keep them in alignment and to do away with clip-shearing strains. There are two cast-iron lined external brakes on the jackshaft, and two thermoid-lined ones of the same type operating on 15½-inch drums on the rear wheels. The steering gear is of the worm-and-sector type.

Avery Commercial Truck

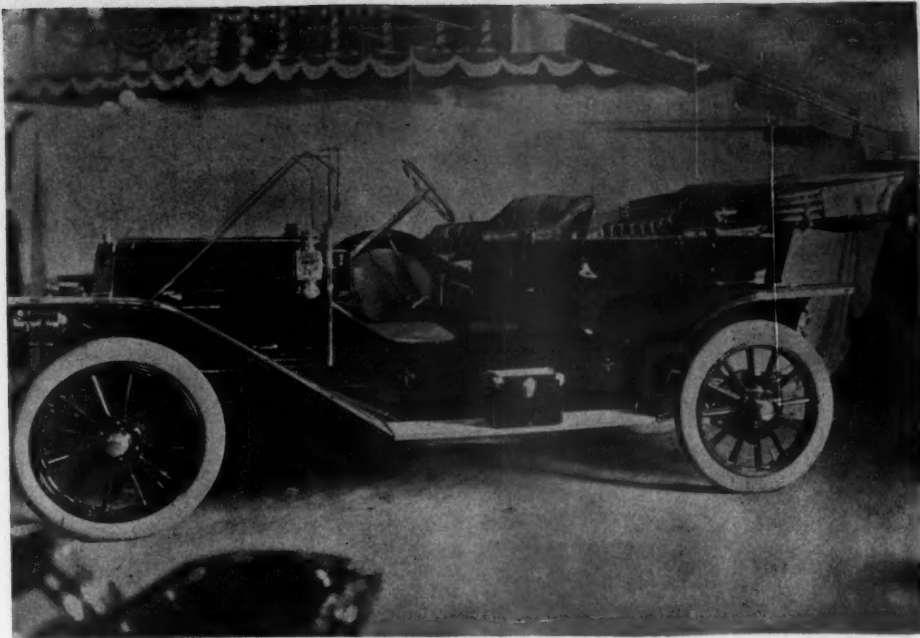
The Avery truck is built on a single type of chassis, but so designed as to be readily convertible into regular delivery truck for farm or city work, or into a tractor for the hauling or operation of heavy farm implements. It is constructed to meet the requirements of the farmer and country dealer, and its use is rapidly increasing. This truck is equipped with a 40-horsepower Rutenber

motor, a multiple-disk clutch, a sliding selective sliding gearset, a differential and jackshaft, all of which are separate units, and drive from the jackshaft sprockets is by means of regular side chains. The motor is of standard L-type design, has a five-bearing crankshaft, and an aluminum crankcase which is divided horizontally with the crankshaft held in the upper section. Cooling is by means of water, circulated through the integral waterjackets and the flat-tube radiator by a gear-driven gear-pump, and a belt-driven adjustable ball-bearing fan is provided to enhance the efficiency of the system. Lubrication in the motor is by a self-contained, circulating splash system, with a constant oil-level maintained in the crankcase by a pump. A Bosch high-tension magneto, and a storage battery, a four-unit coil, and a timer, with the necessary wiring and two sets of spark plugs, comprise the double ignition system. The motor parts are all very accessible and thoroughly protected from dust or dirt, and all control, water and gas connections are direct and convenient.

The transmission from the motor is through a disk clutch having thirteen steel disks which run in a bath of oil, then through a straight-line shaft with a single universal joint encased and packed in grease, to the gearset which gives three forward speeds and reverse, and is equipped with annular ball bearings. The jack-shaft, rear and front wheels are fitted with Timken bearings; there are two cross-links on the steering-gear, one in front and one behind the front axle, to take care of the excessive strains put upon this portion of the car when used for tractor work, and the I-beam front axle is reinforced with a truss-rod. Just one set of brakes is employed and these brakes are of exceptionally large diameter of the internal expanding type on the rear wheel drums. The front wheels are 38 inches in diameter and fitted with 5-inch hard rubber tires, and the rear wheels are the same size but fitted with a double set of 4-inch



WILCOX ALSO IS MADE AS A COMMERCIAL PROPOSITION



LUVERNE FIVE-PASSENGER TOURING CAR

tires. Semi-elliptic springs are used both in front and rear, the front ones having ten leaves $2\frac{1}{2}$ inches wide, and the rear ones having twelve leaves 3 inches wide.

The frame is of steel channel construction, riveted through. The truck has a wheelbase of 140 inches, a 52 by 126-inch hardwood load platform, a carrying capacity of 3 tons, a fuel tank capacity of 24 gallons, a water tank capacity of 9 gallons, the net weight is 5,500 pounds, and any style body will be furnished to order. One feature of the Avery truck is the extension of the crankshaft of the motor at the front end of the car. This extension is fitted with a broad faced pulley so that the machine may supply power for threshing, shelling, pumping, sawing, baling, and other belt work, such as is required on the average sized farm. A governor is also provided on the engine, by which the engine may be made to run at any regular required speed for stationary work. Special tires and rims are also furnished for tractor work.

Luverne Touring Cars

The Luverne line for 1910 comprises five touring car models, including: A seven-passenger model No. 740 with a four-cylinder Rutenber motor, $4\frac{1}{2}$ -inch bore and stroke; 34 by 4-inch tires and 120-inch wheelbase; a five-passenger car, model 540, which is built upon the same chassis; a five-passenger car, model 535, with a Beaver engine having four cylinders with a bore and stroke of $4\frac{3}{8}$ and $4\frac{1}{4}$ inches, 32 by $3\frac{1}{2}$ -inch tires and 120-inch wheelbase; and a five-passenger car, model 530, with a four-cylinder 4 by 4-inch motor, 32 by $3\frac{1}{2}$ -inch tires and 110-inch wheelbase. In models 740, 540 and 530 the cylinders of the motor are cast separately and equipped with a double ignition system, including a Bosch high-tension magneto, and in the model 535 the cylinders are cast in pairs and a Remy dual ignition system is employed. These cars are manufactured

by the Luverne Automobile Co., Luverne, Minn., and are up to date in every line and detail. Outside of the difference in motor types, the general characteristics of the cars are similar. The clutches are of the multiple-disk type running in a bath of oil, the gearsets are of the selective design located amidships, drive to the semi-floating rear axle is by means of a shaft enclosed in a torsion tube, springs are semi-elliptic front and elliptic rear, and the control of the car is conventional. The Rutenber motor is of standard design, L type, has a five-bearing crankshaft. Lubrication in the motor is by means of a self-contained, circulating splash system. A Bosch magneto, dry cells, a four-unit coil and a timer are features of the double ignition system. The clutch levers are long, to insure easy operation, ball-thrust bearings are fitted, and a double universal joint is provided between the clutch and gearset. The gearsets give three forward speeds, are of simple construction and fit-

ted with annular ball bearings throughout. Gear-shift levers work in H slots and rock sideways. Brake levers are connected to the clutch so to disengage it before taking hold, and the levers are handsomely finished. At the rear of the gearset is a single universal joint connecting the drive-shaft to the gearset, and both the joints in front and behind the gearset are encased and packed with grease. All rear-axle bearings have steel sleeves, both inside and outside, thus removing all wear from the permanent axle parts. The front axle is of I-beam section; brakes are of the internal and external type, operating on 14-inch rear wheel drums, and the frame is of pressed channel steel, with a drop in front of the rear axle for ample spring clearance, and narrowed in front to increase the turning radius. The steering gear is of the worm-and-gear type, adjustable for wear. The steering arm shaft has a long bearing, and the arm is carried outside of the frame in a straight line to the connection on the right knuckle, which is over the axle. Spring cushions are provided in all connections, and the wheel is of large diameter, having an aluminum web inlaid in a Circassian walnut rim. The bodies of wood are of straight-line design.

Croxton-Keeton Cars

The Croxton-Keeton cars for 1910 will comprise in addition their German type 45-horsepower car, a new French type suburban which will be provided with several designs of bodies, including four and six-passenger touring, landaulet and brougham types. The landaulet is recommended by the makers for use as taxicab, being provided with a driver's seat at the left, the control levers in the center, and a trunk rack at the right in place of the other seat. The country or suburban models are all equipped with right-hand drive with control at the side, and double front seats can be provided on town cars instead of the trunk rack if desired. The motor is a four-cylinder four-cycle water-cooled, with $4\frac{1}{4}$ -



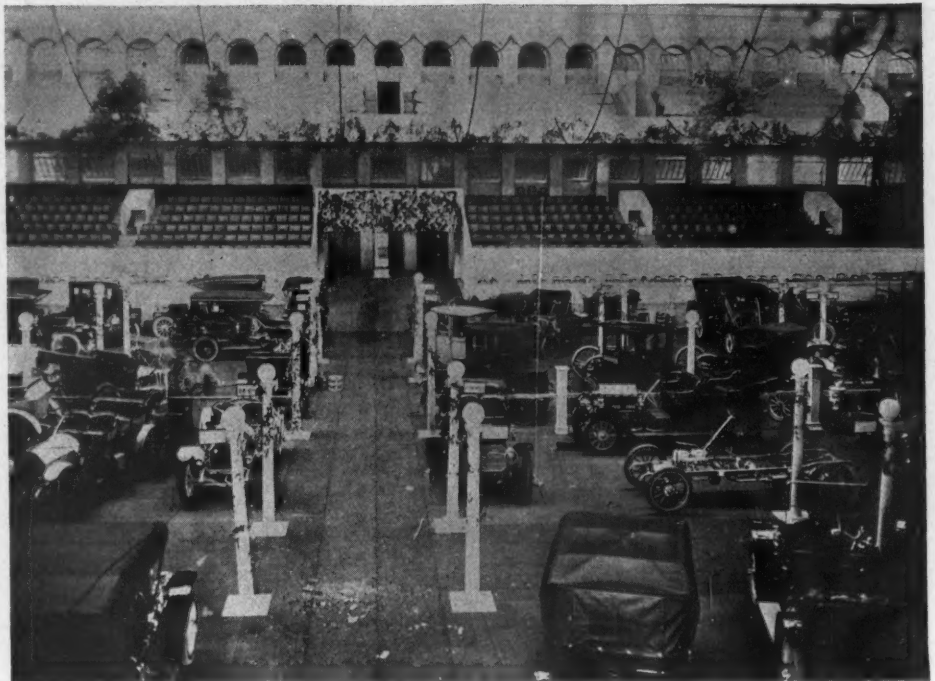
WILCOX STAKE TRUCK BUILT IN MINNEAPOLIS

inch bore and $4\frac{1}{2}$ -inch stroke. The cylinders are cast in pairs with the valves all on one side and operated by a single camshaft. A Bosch dual-ignition system is employed; the camshaft gear and magneto gears are all housed in an oiltight compartment cast integral with the crankcase; and the crankshaft is of high carbon steel hardened and ground, with three main bearings of generous lengths. The flywheel is of peculiar design, being constructed on the principle of a blower. It takes in air from the right side of the motor and forces it out through the radiator, which is located at the rear of the motor in a manner characteristic of the Renault cars. The crankcase in the motor is divided horizontally with the oil reservoir of a self-contained lubricating system cast integral with the lower portion. The circulation of this system is maintained by a plunger pump, operated by an eccentric on the camshaft, which also assists to maintain a constant level in the splash compartments of the crankcase. Transmission from the motor is by means of a multiple-disk clutch of sixty-one disks working in oil, then through a flexible shaft to the selective sliding gearset, whose shafts are carried on annular ball bearings, and rest in the same vertical plane. The propellershaft is inclosed in a torsion tube, and transmits the power to the semi-floating rear axle. Wheels are equipped with 33 by 4-inch rear and 32 by $3\frac{1}{2}$ -inch front tires; and the wheelbase is 114 inches. Springs in front are semi-elliptic, while in the rear three-quarter-scroll elliptics are employed. Brakes are of the external and internal type, all operating on the rear wheel drums.

The Gopher Truck

The Gopher truck, built by the Robinson-Loomis Motor Truck Co., Minneapolis, Minn., is made in two models, model A, a 1-ton, and model B, a 2-ton vehicle. Model A has a vertical valveless, two-cycle motor with a $4\frac{1}{2}$ -inch bore and stroke and is rated at 22 horsepower. This motor is located in front under the driver's seat on a subframe. A vertical-tube radiator, a positive gear pump are features of the cooling system; ignition is jump spark with dry cells and battery as sources of current. The timer and water pump are located at the right front end of the motor and driven off the same shaft. Transmission from the motor is by means of a leather-faced cone clutch, a straight lined shaft with two universal joints, to the selective sliding gear transmission which is inclosed with the differential mechanism on the jackshaft, in a one-piece aluminum case, and the driveshaft, countershaft and jackshaft of the transmission are all equipped with Timken roller bearings. Drive from the jackshaft to the rear axle is by means of roller side chains. The rear axle is a solid square forging and the front axle is of I-beam section. The frame is of heavy channel iron, resting on semi-elliptic springs front

Milwaukee Motor Show This Year



ONE GENERAL VIEW OF MILWAUKEE SHOW

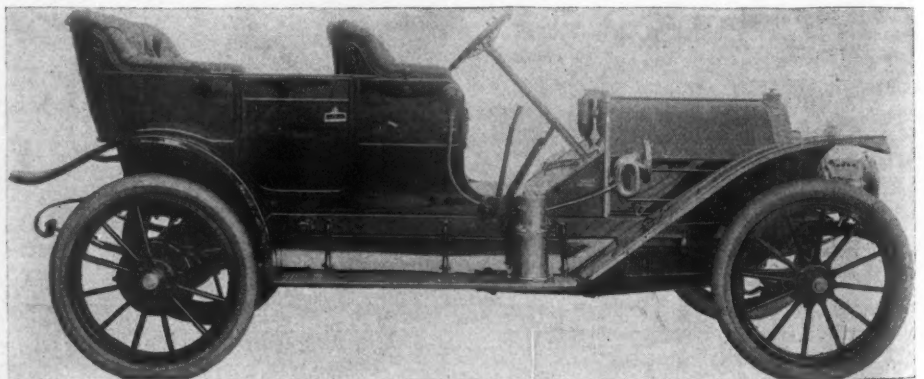
and rear; wheels are 32 inches in diameter with 3-inch front and $3\frac{1}{2}$ -inch rear, solid rubber tires; the wheelbase is 98 inches and the tread 56 inches. A worm-and-sector steering gear is employed with a connecting link crossing transversely at an angle to the left steering knuckle. Control is conventional except that the spark and throttle levers are on a quadrant on the steering column. The model B 2-ton truck is similar to this model in every respect except that the bore and stroke of the motor are $5\frac{1}{8}$ inches and 5 inches respectively, and the wheels are 34 inches in diameter, with the tires $3\frac{1}{2}$ -inch front and 4-inch rear.

Overland Delivery Wagon

A commercial car which is exciting considerable interest at the Minneapolis show is that of the Overland delivery wagon, which is the only pneumatic-tired delivery car modeled on the regular stock chassis at the exhibit. This car has a mean carrying capacity of 1,000 pounds; and the chassis differs from the regular stock

chassis only in the point that a heavier reinforced frame is used, and it is equipped with 34 by 4-inch tires. The body of the car is entirely inclosed and ideally adapted for use in laundry, florist's and newspaper delivery. The chief beauty of the car for delivery purposes lies in its simplicity. It is capable of a speed of from 4 to 30 miles per hour on high speed, with load. It is equipped with a regular Overland four-cylinder water-cooled four-cycle motor, has a multiple-disk clutch and planetary transmission; and does not require an expert operator as there are no gears to mesh, no levers to work, only pedals to push. From the interest generally shown in this car it is promised a very bright future among the delivery cars during the season of 1910.

The Buick light delivery wagon is shown. It is built on the two-cylinder chassis, which has been modified to meet commercial needs. The opposed motor has $4\frac{1}{2}$ -inch bore and 5-inch stroke. The load capacity is 1,000 pounds, wheelbase 92 inches, tires 34 by 4-inch



BADGER FIVE-PASSENGER TOURING CAR FOR 1910

Much Greater Than Predecessor



RECITAL HALL AT MILWAUKEE, LOOKING TOWARD THE STAGE AND SHOWING DECORATIONS

MILWAUKEE, WIS., Feb. 23—Covering fully 100 per cent more floor space than the first Milwaukee show in March, 1909, and showing increases ranging from 25 to 75 per cent in every department, the second annual Milwaukee motor show opened in the new \$500,000 Auditorium, Fifth, Sixth, Cedar and State streets, last night.

While the Milwaukee Automobile Club could very well have used platform or balcony spaces in the arena, to keep all pleasure car exhibits together, patrons appreciated the seating accommodations highly, about 3,500 opera chairs being given free. The arena was not large enough to accommodate all car displays, and the overflow is taken care of in a large recital hall seating 1,500 and separated from the arena by the grand staircase rotunda. Directly opposite this hall is another of similar size, devoted entirely to accessories, motors, parts, etc. Two smaller halls flank the grand staircase, one being devoted to the motor cycle and the other as a reception room for members

of the club and their friends. The basement, a mammoth oval hall under the arena, contains the commercial cars. The entire oval center space is a massive monolith supporting the arena floor. The entire building is of solid concrete and the fire hazard is reduced to a minimum.

Decorations of Auditorium

The Auditorium is so massively beautiful that to embellish it with elaborate decorations would have been desecration. Long streamers of evergreens, bunches of greens and natural garlands are the only wall and ceiling decorations used. This made an elegant color scheme of green and white. The floors are carpeted, a temporary board floor being laid on the concrete in the main arena. The aisles are marked by wooden, white-enameled columns, surmounted by frosted globes. The regular illumination of the building is, with the aisle lights, sufficient to make the halls as light as the sunniest day at all times. The overhead lighting is a particular feature of this building, there being an immense skylight around which there

are four rows of tungsten incandescents.

Forty-four distinct makes of cars are shown in the pleasure vehicle sections and the total number displayed is in excess of 100. Twenty-three cars are shown at a Milwaukee show for the first time, as follows: Auburn, Babcock electric, Brush, Courier, Deal, Empire, Fuller, Grout, Halladay, Haynes, Hudson, Hupmobile, International, Imperial, Mercer, Ohio electric, Ohio, Paterson, Pierce-Racine, Silent Sioux, Velie, Welch and Warren-Detroit. Ten commercial car manufacturers are represented in the truck section, seven being newcomers, as follows: Abresch-Cramer, Buick, Clark, Packard, Meiselbach, Utility and Haushalter. Thirty-four concerns make accessory, motor and parts displays. Twenty-five motor cycles, representing seven manufacturers, are shown in the motor cycle section.

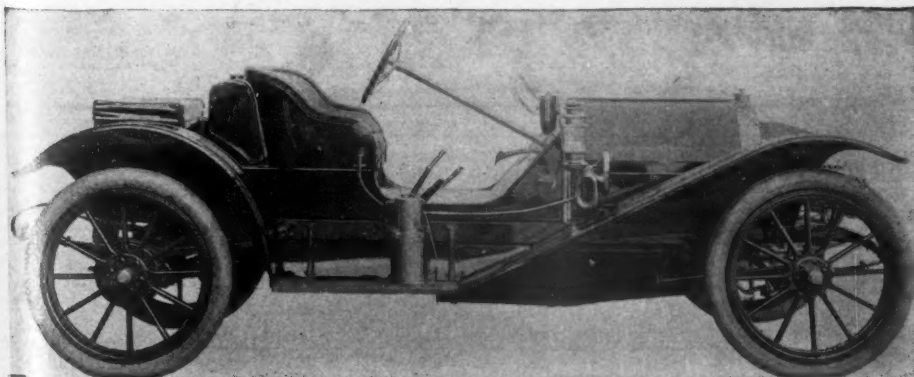
Unfortunately the customary dissension over motor shows in other cities thus far was repeated in Milwaukee. Fourteen dealers, representing some of the leading makes on the market, to the number of twenty-seven remained out of the show. The dealers were organized and conducted a campaign against the club show through the newspapers and otherwise. This undoubtedly affected the attendance, although this was not appreciable when compared with the 1909 show. The outsiders are conducting private shows in their respective garages.

If every Milwaukee dealer were represented in the Auditorium show, its value as an attraction to the prospective buyer as well as the curious public would, of course, be much greater. Milwaukee's show, though more vast than any outside of the Chicago show, is still in the second class and probably can never climb, because of the proximity of Chicago.

With all due respect to the power of attraction of the Chicago show, it must be said that since the Milwaukee Automobile Club made the local show a permanent fixture, the Wisconsin delegation to Chicago—not considering interested dealers—is growing smaller. But at best, a motor show held in February or March seems to have no very great value as a selling proposition, because it is nearly time for the next year's models to come out. Wisconsin people, as a rule, buy their cars in the fall, for spring delivery. In Milwaukee winter driving is now very common, and these owners make purchases even earlier than fall—in July, August and September, depending upon the time of issue of new models.

Want Entertainment at Show

If show promoters were brutally frank, so to speak, it would be admitted that the shows of Milwaukee's class have their greatest attraction in being a form of entertainment and amusement, like a circus, or a blaze of glory of other sorts. But they are willing—in Milwaukee—to pay for seeing the show and this revenue is not to be scoffed at by promoters.



BADGER, A WISCONSIN-MADE CAR, AS A TWO-PASSENGER RUNABOUT



STERNBERG 1/2-TON GEAR-DRIVEN TRUCK

This year's show proved that the motor exposition is probably the greatest event of the year from a spectacular standpoint. Society has taken a deep interest. The newspapers are awakened and three fine show issues were published this year, to one in 1909. It must be true that outside dealers found value in the Milwaukee show, judging from the large list of newcomers and the grand belated rush. It can be seen, however, that in many cases it was for the sake of getting a foothold in Wisconsin—a vast and fertile field that is only starting to be cultivated—that the dealers or manufacturers made such an effort to get in. The advertising the new cars receive in the territory through the show cannot be underestimated.

To the manufacturers exhibiting here—and nearly all are within a small radius of Milwaukee, the show is of great value in advertising, obtaining representations in the smaller cities, and lining up prospects. In addition, the attendance is confined almost totally to Wisconsin people and state-priders who make purchases favor the native cars. This, however, is not the rule, the price and reputation being the greatest consideration.

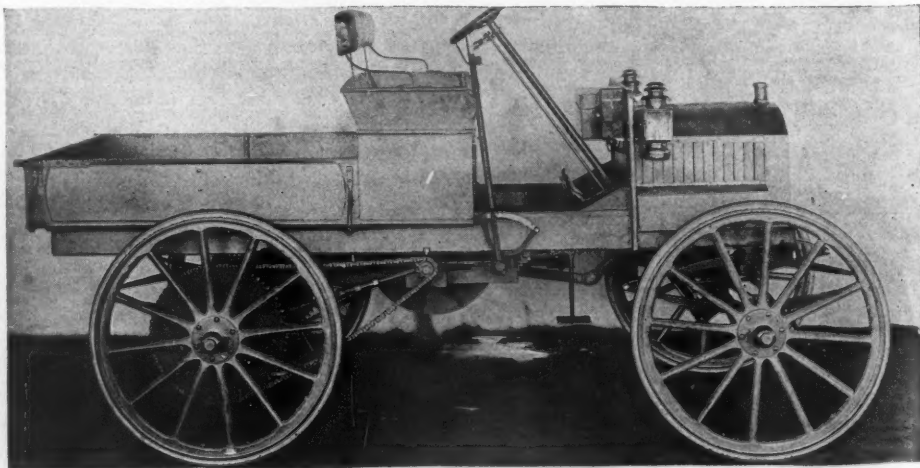
Value of the Show

The real value of the Milwaukee show is the creation of interest—and accentuation of this interest year by year—in the motor car. It is an education and as such deserves the support of every manufacturer. Wisconsin, with 3,000,000 people, has only 10,000 motor cars. It can easily stand 30,000, with its wealth and resources. The Milwaukee Automobile Club, in presenting an annual show, is doing the greatest service to the motor industry in Wisconsin that can be conceived. Results may not be apparent at once, but they are bound to come. As every show grows bigger and better, so more people attend and become interested. Its shortcomings are nothing compared with its advantages. The shortcomings are not due to any one man or to a set of men, but are natural, immovable and unavoidable.

This year the show will run 6 days, in-

cluding Sunday, February 27. This will be a great advantage in regard to attendance, as there are hundreds and thousands of people who will run into Milwaukee for the last day, it being a holiday. The necessity for a Sunday date during show week was very apparent last year, but it was then too late to carry over the show. Sunday should see the greatest crowds of the entire show.

To Clarke S. Drake, president of the Milwaukee Automobile Club and general manager of the show is due much of the credit for the successful show. In face of great handicaps Mr. Drake, ably assisted by the loyal members of the club in general and by his show committee particularly, has made a great show a fact. Assisting him as members of the committee are Dr. Louis Fuldner, L. A. Dearholt, Christian Scholtka, Oscar F. Fishedick and M. C. Moore, who is president of the Wisconsin State Automobile Association.



A MEISELBACH MODEL WITH DELIVERY BODY

The Meiselbach Mfg. Co., Milwaukee, has for several years manufactured friction-driven trucks of one carrying capacity or another, and this year is showing a delivery wagon of 1,000-pounds carrying capacity. As in all previous Meiselbach wagons a two-cylinder motor is employed which is mounted transversely in front.

This motor, rated at 20 horsepower, has 5-inch bore and 4-inch stroke. The friction transmission set is located amidship and consists of a sliding friction wheel on the continuation of the crankshaft, or, perhaps more properly speaking, on the propeller-shaft. This wheel rotates between two large friction disks, each disk being on the inner end of a short shaft, on the other end of which is a sprocket for chain-drive to the rear wheels. The friction wheel on the propellershaft is moved by lever along the shaft to give different speeds, and the two disks are pressed against this pulley through pedals.

The friction wheel drives the disks in opposite directions and the drive from the left disk is reversed by mounting the sprocket on a short shaft gear-driven from the shaft carrying the disk. This transmission is known as the McKaig double-disk type. The running gear of the Meiselbach truck is built around an angle iron frame which is 120 inches long and 34 inches wide. This frame is made from 1/2-inch stock with the angle lips 2 and 2 1/2 inches. Supporting this frame are crucible steel elliptic springs in front and rear which springs rest on Sheldon ball-bearing axles of square section 1 3/8 inches to the side. The rear wheels are provided with brake drums for one set of brakes, the friction reverse constituting the other set. Some of the motor details include thermosyphon water circulation, double set of dry cell ignition, mechanical oiler, and Schebler carburetor.

Sternberg Trucks

The Sternberg Mfg. Co. is showing two types of Sternberg trucks—a 1-ton friction-driven type and a 1 1/2-ton design with a clutch type of gearset, the Cotta gearset being employed. On both of these a two-

cylinder water-cooled motor with horizontal cylinders is used. The bore is 5 1/2 inches and the stroke 5 inches, giving an A. L. A. M. rating of 24 horsepower. On both chassis the motor location is the same, being transversely in front and immediately in rear of the axle. In the 1 1/2-ton truck the Cotta transmission is located

amidship, being mounted on a sub-frame. The differential and jackshaft are incorporated with it and side chain-drive to the rear wheels is employed. This truck is made with a variable wheelbase ranging from 110 to 124 inches, according to the body design, and although its capacity is rated at 3,000 pounds, it is listed with a maximum load-carrying ability of 2 tons.

This truck has a stout running gear. The frame is wood with steel reinforcements and is carried on semi-elliptic vanadium steel, the front pair 40 inches with leaves 2 inches wide and the rear pair 46 inches long and with leaves $2\frac{1}{2}$ inches wide. In keeping with this construction are the Timken roller bearing axles, the rear axle a forging 2 inches square and the front axle a forging 2 inches thick from front to rear and $2\frac{1}{2}$ inches deep. Solid tires are fitted, the fronts measuring 34 by 3 inches, the rear 36 by $3\frac{1}{2}$ inches. Braking rests in a double set, the emergencies hand-controlled acting on the jackshaft whereas the regulars, or service brakes, are expansion types operating on rear wheel drums which are 14 inches in diameter and $2\frac{1}{2}$ inches wide.

Owing to the motor being located beneath the frame there is little to interfere with the general load-carrying design of this car. The gasoline tank of 20 gallons capacity is carried beneath the seat. The motor is fitted with either a Bosch or Splitdorf magneto and a Schebler carbureter. The Sternberg friction-driven truck employs the same motor as in the other type. The friction set is located in front of the rear axle, and consists of a single friction disk carried on a propellershaft. This transmits to a friction wheel 24 inches in diameter and carrying a $1\frac{1}{2}$ -inch fiber facing of tire. The friction disk is made of macadamite with which the Sternberg



STERNBERG LIGHT DELIVERY WAGON DESIGNED FOR TOBACCONIST

may be fitted with several types of bodies. The motor in model A chassis is of the horizontal two-cylinder opposed type, and in the model B chassis it is of the four-cylinder horizontal-opposed type; both water-cooled by means of a thermo-syphon system, having large waterjackets and a generous radiator capacity. The cylinders are of the L-type; valves are of large diameter, adjustable, and mechanically-operated; lubrication is by means of an internal gear-driven pump; ignition is jump spark with a storage battery as a source of current, and the wiring is carefully done.

The motor is readily accessible by removing a portion of the floor board of the body, or from beneath, and by reason of the high wheels, ample clearance is provided. The transmission on all models is of the friction type. A heavily ribbed disk is mounted on the end of a shaft well-supported in a long bearing, in a heavy casting securely bolted to the frame. This disk is made to drive a

42 inches in diameter, and equipped with solid rubber tires. Elliptic springs are employed front and rear. Emergency brakes are fitted to the rear wheel drums; wheelbase is 88 inches, and the capacity is 1,200 pounds for model A, 2,000 pounds for model B.

Mueller Delivery Wagons

The motor delivery wagons manufactured by the Mueller Motor Car Co., Milwaukee, Wis., and shown at Milwaukee are comparatively low-priced cars, with a two-cylinder opposed air-cooled engine of the horizontal type, having a $4\frac{1}{2}$ -inch bore and 6-inch stroke, and rated at 20 horsepower. Power is transmitted from the motor through a planetary gearset, and side chains to the rear wheels, which are 40 inches in diameter, and equipped with 2-inch solid rubber tires. The wagon box is 10 feet 6 inches long with a clear floor space under the seat 44 inches wide, with 6 feet 6 inches space back of the front seat, built with drop rear ingate. This wagon is simple in construction, and guaranteed to stand up under severe service. A one-cylinder delivery wagon is also made by this company which is equipped with a 10-horsepower motor of the same type, and has a body 9 feet long, with 5 feet back of the front seat. This wagon may be equipped with 38 or 40-inch tires and has a load carrying capacity of from 800 to 1,000 pounds.

Makes Roadsters and Buggies

The International Harvester Co. of America is showing two types of cars—one a roadster with 34 by $3\frac{1}{2}$ -inch tires, and the other a motor buggy with high wheels and solid rubber tires. The roadster, known as the I. H. C., uses a four-cylinder, air-cooled motor of the valve-in-the-head type, the intake valves mounted at an angle on one side and the exhaust at the other side. The camshaft is located over the cylinder heads and is driven by silent chain from the crankshaft. Placing the valves oppositely in the head and opening them by rocker arms makes it possible to obtain a dome-shaped combustion chamber. The cylinders are small, measuring $3\frac{3}{4}$ -inch bore and the same stroke, giving a rating of 2.5 horsepower. A peculiarity in the cooling system is the use of two fans, which direct the air against the exhaust



BRODESSER MOTOR TRUCK WITH STAKE-PLATFORM BODY

company has experimented and tested very largely. The wheelbase, wheel sizes, frame, brakes, etc., are the same on this friction-driven type as on the other model.

Brodessor Motor Trucks

Brodessor motor trucks, manufactured by P. H. Brodessor & Co., Milwaukee, Wis., are made in two chassis models either of which

fiber-rimmed wheel which slides on the jackshaft which transmits the power through side chains. The position of this drive wheel relative to the center of the disk determines the speed variation either forward or reverse.

The steering gear is of the rack-and-pinion type, and rigidly attached to the frame. Front wheels are 40 inches, and rear wheels

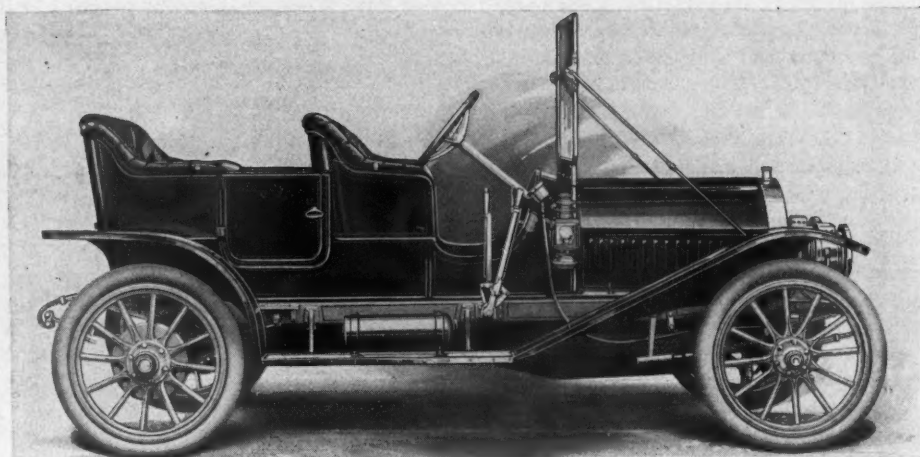
side of the cylinders. These fans are driven through helical gears from a shaft which parallels the crankshaft, this shaft taking its drive by friction from the flywheel. Ignition is by magneto with batteries in reserve. A mechanical oiler feeds direct to the motor parts.

Located in the flywheel is a cone clutch with the usual leather facing and back of this comes a conventional gearbox with shafts carried on ball bearings and gears to give two forward speeds and one reverse. Shaft-drive is used in conjunction with the torsion tube so that but one universal is necessary in the propellershaft. There are three brakes—one in the rear of the transmission, an expanding set on the rear wheels. Incorporated in the running gear are elliptic springs, a wood frame reinforced with steel plates, 92-inch wheelbase and 34-inch tires. The control of this roadster rests with a steering wheel with throttle and spark levers beneath at the right and the usual levers in front. The motor buggy, built by this concern, uses a two-cylinder, air-cooled motor, which it carries longitudinally under the front of the body.

This motor has cylinders 5 inches square giving a rating of 20 horsepower. The motor has valves in the head and is lubricated by mechanical oiler. A unique type of two-speed gearset is used in which the gears are constantly in mesh. Each gear is equipped with an internal ratchet; pawls with protruding ends through the hollow shaft engage these ratchets; and the controlling lever operates in the shaft throwing the pawls in contact with the ratchets according to the speed desired. Side-chain drive is used.

The Badger

The Badger car for this year is built with two body types—a two-passenger roadster with gasoline tank on the deck back of the seat with additional room in rear of the tank for a touring trunk, and a five-passenger touring car. The Badger chassis is a two-unit construction, the four-cylinder motor together with a selective gearset constituting



WISCO, ANOTHER CAR THAT IS MANUFACTURED IN WISCONSIN

one unit and the rear axle with torsion tube inclosing the propellershaft forming the second. With this construction there is but one universal joint, a spicer, which is located in rear of the gearset. The Badger car, now entering on its second season, uses a motor with cylinders 4 inches square cast in pairs and of the L type, its official rating being 25.6 horsepower. One characteristic in conjunction with the motor is the inclosing of the flywheel, and carrying the gearbox immediately in rear of it and supported through it. As is common in many cars of this type of unit construction a conventional four-point suspension is used, the plant being carried on a subframe. The motor is cooled by thermo-syphon circulation, a vertical radiator with horizontal fins being fitted. Ignition is a Bosch dual type with magneto mounted on a bracket on the right side of the crankcase and driven through inclosed gears.

The gearset selectively operated affords three forward speeds and has both shafts carried on F. & S. annular ball bearings. Access to the gearset as well as the leather-faced cone clutch in the flywheel is through a removable cover plate in the housing of each. Back of the gearbox comes the only universal joint in the transmission system. The propellershaft is inclosed in a torsion

tube and the rear axle, a semifloating design, has the drive shafts carried of Hyatt roller bearings. The pinion shaft in this axle is carried on two New-Departure ball bearings. The Badger running gear has been brought up to date in every respect, the pressed steel frame of bottle-neck design is dropped in front of the rear axle, thereby permitting of three-quarter elliptic springs in the rear, these springs being 44 inches in length. In front semi-elliptics 35.5 inches long are used. Braking is confined to double sets on the rear wheels, one internal and the other external. Both are applied to long transverse equalizers which work between the side members of the frame so that all of the connections are direct and located between the side members. The steering gear is of the worm-and-gear design and the tie-rod is back of the front axle. Above the steering wheel spark and throttle controls are located. Thirty-four by 3½-inch tires are used.

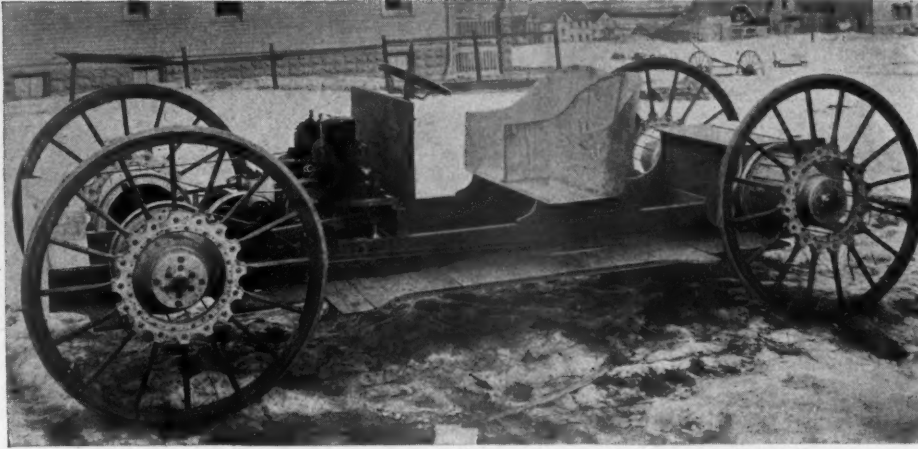
Wisco a New Car

The Wisconsin Carriage Co., Janesville, Wis., manufactures the Wisco car which is fitted with four or five-passenger bodies. The Wisco is a conventional product throughout, employing as it does a four-cylinder motor, 4½-inch bore, 4¼-inch stroke, with a rating of 30.6 horsepower. This motor uses L-type cylinders cast in pairs and with timing gears at the forward end entirely encased. There is a circulating oiling system in which the oil supply is carried in a sump in the base of the crankcase. The gear oil pump is located between the sump and the flywheel, its drive being through a vertical shaft from the camshaft. On the right, or non-valve side, are the magneto and centrifugal water pump, the magneto located at the rear so that the amount of wiring is correspondingly reduced. The magneto, a high-tension Bosch, constitutes one system, the other being a battery set. Two sets of plugs are furnished.

The transmission system in the car begins with a leather-faced cone clutch in the flywheel with springs placed beneath the leather facing; a three-speed selective set with gears of alloy steel, and shafts carried on Hess-Bright bearings; and a floating rear axle of Smith design in which



IMPERIAL, A CAR MANUFACTURED AT JACKSON, MICH.



FOUR-WHEEL-DRIVE HAUSHALTER CHASSIS

a pressed steel housing is used. Incorporated with this axle is a torsion tube which incloses the propellershaft. The differential gears are of alloy steel. F. & S. ball bearings are used in the rear as well as the front axle. The front axle, also of Smith design, is a double channel pressed steel type with one channel placed by the side of the other.

In the running gear use is made of a frame construction arched above the rear axle and bottle-neck at the dash. Three-quarter elliptics are used in the rear. The wheelbase measures 118 inches, 34 by 4-inch tires are provided, and control is conventional with change speed and emergency brake levers at the right, throttle and spark above the steering wheel, a foot accelerator and the usual pedal.

Haushalter Car

The Haushalter car, one of the most unique machines in the Milwaukee show, was invented, patented, designed and built by Dr. H. P. Haushalter, of Milwaukee, Wis. Its characteristic features are many and diversified. It has spring wheels of large diameter with solid tires of such efficiency that not even riding springs are required; the frame is of wood and under-slung, yet there is a clearance of 15 inches. It has a four-wheel drive, friction transmission, and numerous other features, some of which we will try to enumerate. The car has a two-cylinder vertical air-cooled motor, resting transversely on a wooden sub-frame on the right side of the car in front of the dash; the flywheel is at the left end of the motor just a trifle to the left of the center of the car. To the left of the flywheel and on an extension of the crankshaft, a small leather-faced wood pulley is attached. This transmits power from the engine through a similar pulley about twice its diameter, to a steel pulley twice the size of the latter; these various-sized pulleys constituting the reduction gearing. The intermediate pulley is supported on a sub-frame which has a pivotal support, and is so arranged as to be operated by foot or lever. When this pulley is thrown into contact with the other pulleys the friction transmission is brought into operation.

On either end of the jackshaft to which the large steel driving pulley is attached, there are two smaller pulleys by means of which power is transmitted by wire cable to larger pulleys attached to the road wheels. An inverted glass bottle constitutes the gasoline supply tank, lubrication is by means of a belt-driven mechanical oiler, ignition is jump spark with a storage battery as a source of current, and a belt-driven fan is provided to facilitate cooling. The car is not yet quite complete, as it was the intention of the inventor not to have it on exhibition before spring. The resiliency of the wheels can be readily demonstrated; there is a universal joint at the bottom of the steering column that is worthy of attention, and although there may be a number of features which are perhaps not of the most improved engineering practice, the inventor does not claim to be an engineer or a mechanic, stating that he is merely a jack-of-all-trades and has endeavored to bring out his ideas as clearly as possible.

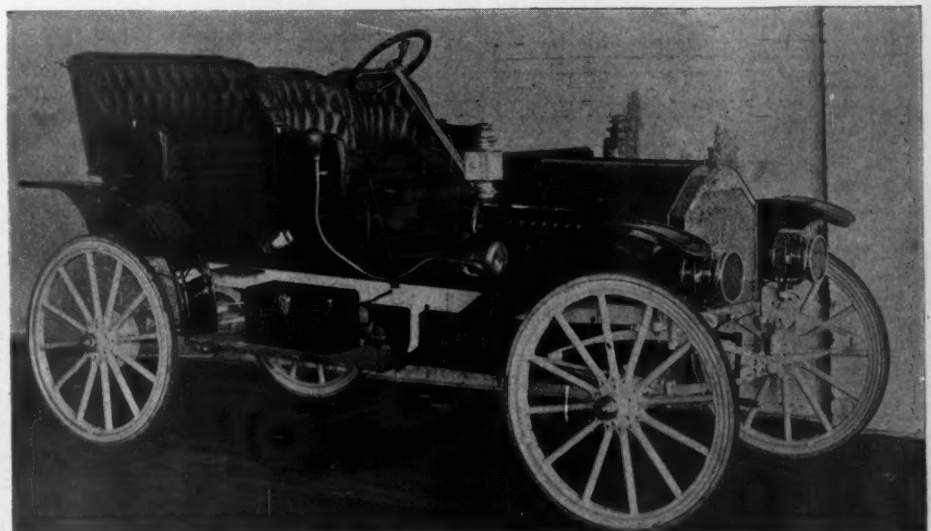
Deal Car Is Shown

The Deal Motor Vehicle Co., Jonesville, Mich., whose cars are seen for the first time at Minneapolis, manufactures a comprehensive line of cars ranging from motor buggies and motor buggy delivery wagons

to regular pleasure cars. The motor buggy type uses a two-cylinder air-cooled power plant, a two-speed planetary gearset, both located centrally under the body, and chain-drive to the wheels. It has an 82-inch wheelbase and 36-inch wheels shod with solid rubber tires. A rather unique type of vehicle is the model S, four-passenger surrey fitted with either solid or pneumatic tires. When solid tires are used 37 by 2-inch sizes are furnished, but if the request is for pneumatics the size is 32 by 3½. This model uses an en bloc motor with 4-inch bore giving a 25.6-horsepower rating. This motor has a circulating oil system, thermo-syphon cooling, and dry cell ignition. Back of the motor is a two-speed planetary set whence drive to the rear axle is through a propellershaft and one universal. The rear axle is of the semi-floating type with nickel steel drive-shafts carried on ball bearings. One set of brakes is mounted on the rear wheels and expand against 10-inch drums. Spring suspension is elliptic all around, the rear set being pivoted to the frame. The largest Deal vehicle is a five-passenger touring car having a motor with cylinders cast in pairs. The transmission system incorporates a three-speed selective set, shaft-drive, and semi-floating rear axle. The wheelbase measures 102 inches.

The Imperial

One of the outside exhibits is the Imperial car shown by the LaCrosse Implement Co. This Imperial must not be confused with the car of the same name brought out in Pennsylvania 2 years ago. The present Imperial is manufactured at Jackson, Mich., and is made in six models of touring and runabout types, with three different sizes of motors. The largest is a five-passenger touring car having as its power plant a four-cylinder, four-cycle, water-cooled motor, 4½-inch bore and 5¼-inch stroke. This motor is of conventional construction with its L-type cylinders cast in pairs, and having the exhaust manifold carried well above the intake pipe so as to leave all intake and exhaust valve springs



THE MODEL S DEAL SURREY CAR

accessible. The motor is oiled by a circulating system incorporating an oil well under the base of the crankcase at the left side, from which the lubricant is pumped to internal leads to the motor parts.

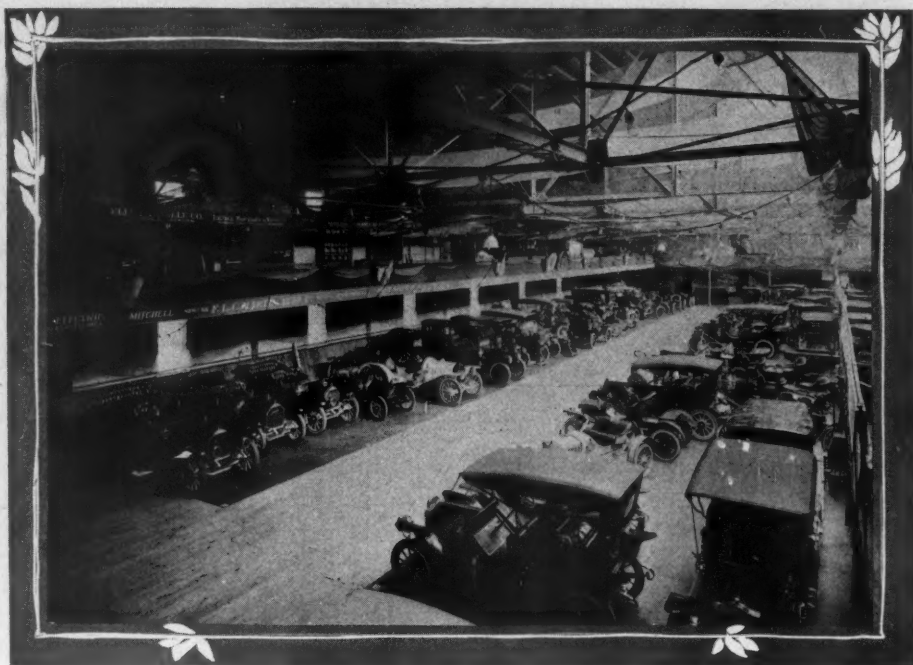
This motor is one more example of thermo-syphon circulation which is gaining such a hold in America at the present time. The intake and return water pipes are of medium size and the course of the water flow is into the base of the jackets on the non-valve side and leaving the top of the jackets. A belt-driven fan is used, the fan pulley being on the forward end of the magnetoshaft, and in front of the timing gear housing. A Schebler carbureter is fitted. Speed variations are through a three-speed selective set. Owing to the fact that there are six Imperial models, it is impossible to give the complete specifications. They are all alike in the four-cylinder motor, excepting the size is varied from 4 by 4½-inch to 4¼ by 4½, to 4¾ by 5¼.

The Johnson Cars

The exhibit of pleasure cars on the main floor, together with the commercial exhibit in the basement of the Johnson Service Co., Milwaukee, Wis., is perhaps the most extensive in the show, one model of all the types manufactured by this company is being exhibited. The characteristic features of the Johnson pleasure cars are a four-cylinder L-type motor of up-to-date and improved design, a selective sliding gearset, a driveshaft inclosed in a torsion tube, a floating rear axle, a straight channel steel frame, semi-elliptic springs, a reinforced double channel steel front axle and 32 by 3½-inch tires.

The power plant rests upon a channel steel sub-frame, the motor and gearset each being held in place by four bolts, all engine gears are encased and run in oil. The timing gears are not contained in a separate housing, but in the forward end of the crank chamber and accessible by dropping the lower half of the aluminum crankcase, which contains the sump of the circulating oiling system. In order to render the adjustable valve stems most

New Jersey East's Show Center



GENERAL VIEW ON MAIN FLOOR OF NEWARK SHOW

accessible, the intake pipe passes between the two pairs of cylinders to the carbureter which is placed on the right side of the motor. The crankshaft of the motor rests on three bearings, and the timing gears are of the noiseless helical type.

A centrifugal water pump, an adjustable belt-driven fan and a Briscoe honeycomb radiator are features of the cooling system. Ignition is by means of an Atwater-Kent jump spark system located on the dash, the distributor of which is driven from the rear end of the camshaft by means of gears and a shaft with two universal joints. The oil level for the splash lubrication and the oil circulation is maintained by a plunger pump driven by an eccentric on the camshaft. The gearset, which is located amidship, is very small and compact and the main and countershafts are in the same vertical plane. Brakes are both

inclosed and of the internal expanding type operating side by side on the rear wheel drums. Control of the car is conventional except that the spark and throttle levers operate on separate quadrants, one under the other, on the left of the steering column, under the wheel.

Utility Truck

The Utility type-B truck, manufactured by the Stephenson Motor Car Co., Milwaukee, Wis., is a 2,000-pound commercial car with a four-cylinder, four-cycle, water-cooled, T-type motor, rated at 30-35 horsepower. It has a double friction drive without differential or gears and is equipped with roller bearings throughout; also side wheel drive to the rear wheels; wheels 40 inches in diameter and equipped with 2½-inch solid tires; 110-inch wheelbase, 56-inch tread, load platform dimensions of 44 by 105 inches and a load capacity of 2,000 pounds. Any style of body is fitted as desired.

In the Utility double-friction transmission the two driven disks which take the place of the flywheel are connected by means of a forged shaft directly to the rear flange of the crankshaft of the vertical motor. Both of the 24-inch friction wheels run on roller bearings of the latest type, being hung from a central equalizing roller bearing on the main shaft and a roller bearing supported by the frame of the car. These friction wheels slide on ground and polished jackshaft when operated by means of two arms working in unison by the change speed lever. By operating a pedal, one friction wheel is moved forward against the front driven disk and simultaneously the other is pressed against the rear disk, whereby both road wheels are rotated in the same direction. To reverse the car, the action of the friction wheels is reversed by another foot pedal.



THE AVERY TRUCK WITH LOW STAKE BODY

With Exhibition on at Newark



ONE-HALF OF NEWARK'S SHOW HELD THIS WEEK

NEWARK, N. J., Feb. 21—Newark's third annual show, in the handsome Essex Troop armory, was successfully launched at 8 o'clock Saturday night with a short address of welcome by Colonel Austen Colgate, personal aide to Governor Fort, whose engagements prevented his presence on the opening night. Colonel Colgate was introduced by Joseph H. Wood, president of the New Jersey Automobile Trade Association, as "the man who has done more to make the motorists of New Jersey no longer ashamed of their motor laws than any other man in the state." The colonel in the course of his remarks told of the motor bill now pending in the legislature at Trenton and emphasized the necessity of reciprocity in dealing with motorists from other states with special reference to the recognition of the licenses granted by those states. He also indorsed federal supervision of inter-state touring and the granting by the federal authorities of a certificate to any properly registered motorist permitting him to tour in any state, subject, however, to the police regulations of that state.

Show Color Scheme

Gold-and-blue, the colors of the N. J. A. and M. C., is the color scheme of the exhibition and is carried out to the limit. Bunting in festoons successfully hide the roof girders, and strings of electric lamps in the prevailing colors and white enhance the effect. Down the center of the armory extends a straight line of gilt uprights holding aloft the gold-and-yellow signs marking each exhibit. The displays along the side-walls are marked by similar signs attached to the lower part of the balconies, which are draped with the omnipresent gold-and-blue.

The 15-foot-wide aisles show the plain pine boarding laid over the tanbark of the big drillroom, the booths being carpeted with a rich dark green burlap. Altogether the decorative result is decidedly harmonious, with an effect of roominess which is not borne out by the wails of those in the outer darkness who were unable to secure space.

Profits Are Divided

The show this year is being held under the management of the New Jersey Automobile Exhibition Co., a specially-organized corporation representing the New Jersey Automobile Trade Association and the New Jersey Automobile and Motor Club. The exhibition company represents about 90 per cent of the branch houses and agents in northern New Jersey, and the show is a great annual gathering place for the trade in the upper section of the state. Trade association exhibitors will partici-

pate pro rata in the profits; the clubmen get the prestige that goes with a successful show.

The thirty-four exhibitors of cars proper that fill to almost overcrowding the 25,000 square feet constituting the big drillroom of the armory are showing an even half-hundred separate makes of cars, and the total number of different models and chassis on display is 120. So limited has the space at the command of the promoters become that not fewer than a dozen would-be exhibitors were compelled to stay out, and are running individual shows at their several establishments. Last year the accessories contingent were rather comfortably accommodated on the main floor, in the far end of the armory. This year the gallery, which occupies three sides of the building, has been fitted up for their use, and here the twenty-eight exhibitors of accessories, occupying 2,500 square feet of space, are installed, not to mention the Midland, Auburn, Klinekar, Buick delivery and M. J. G. complete car displays, which were crowded off the main floor owing to lack of space. The last-named car is a replica of the Allen-Kingston, and is shown here for the first time.

Commercial Exhibit Segregated

The commercial exhibit is segregated at the rear end of the main floor, and is made up of a huge 5-ton Mack truck, Auburn delivery and chassis, Schacht delivery, Buick delivery and a most comprehensive display of Rapid vehicles, including a 5-ton truck, combination stake-and-rack truck, ambulance, 12-passenger hotel wagon and a 3-ton chassis. The Rapid exhibit is a replica of that shown at the Garden, with a couple of additions.

Besides giving every indication of being a record-breaker in the way of a business show, the present exhibition has already become quite a society function, the reception room of the New Jersey Automobile and Motor Club, on the second floor, being the social gathering place for the thousands of motor car owners who live in the Oranges and other well-known suburban sections.



THE LIGHT ABRESCH DELIVERY CAR WITH LOW SIDES

Many Dealers at Cincinnati Show

CINCINNATI, O., Feb. 21—The first annual show under the auspices of the Automobile Club of Cincinnati opened today in the south wing of Music hall. Never in the long history of trade expositions in Cincinnati has anything equaling it been seen. The hall is a great canopy of southern smilax, dotted with red poinsettias, the walls and beams of Horticultural hall are glistening white and the fresh green smilax has been lavishly entwined about every pillar and post and over the walls. The floors are covered with green burlap, the effect of the decorations being to give the entire hall the appearance of a garden. Running the length of the hall is a wide promenade formed by parallel rows of tall white pillars, arched over with smilax, with the booths on either side separated by rows of hedge, an effect which is greatly appreciated by the thousands at the show tonight.

The names of the various exhibitors appear in green lettering on white transparencies and at night the glow of light makes the scene particularly brilliant and beautiful. Suspended from the roof by invisible wires apparently floating in the air are several aeroplanes made by local followers of aviation. A score of gliding kites hover over the exhibits, giving a finishing touch to a unique and splendid picture. More than \$12,000 has been expended by the club in preparing for the show and the result makes it apparent that the Queen City, for half a century the leader in the carriage industry of the country, is about to assume the position it should occupy in motoring. A restaurant on the east balcony is one of the comforts partly appreciated by the visitor and which is well patronized.

Passing along the aisles every prominent maker and local dealer is found to be represented. All the prominent 1910 models are shown. Several of the most unique advertising features of the big show in Chicago had been shipped directly here and are

attracting much attention. Some sixty concerns are showing 200 cars of all sizes and types.

The large number of visitors from Indiana, Ohio, Kentucky and West Virginia registering at the show on the opening day in itself is indicative of the value of the show from the selling standpoint. Every neighboring city like Indianapolis, Ind.; Louisville, Frankfort and Lexington, Ky.; Parkersburg and Huntington, W. Va.; Hamilton, Middletown, Dayton, Springfield, Columbus and Cleveland, Ohio, is represented by parties of enthusiasts, and visitors from the multitude of small towns and cities of the three states adjoining was a further indication of the interest taken in this the first annual show of the Automobile Club of Cincinnati. The Automobile Club of Cincinnati headquarters, in the Gibson house, artistically and comfortably fitted, are an especial point of interest during the motor show. The Leyman-Buick company is exhibiting nine different machines which is the largest number of cars exhibited by any one exhibitor.

As forecasted by the exhibition of last year in this city, the 1910 show makes lower horsepower and less car weight more in evidence. The most popular motor power this year ranges from 28.9 horsepower to 36.1 horsepower. As in previous years some makers build cars of high power, but few of these are noted among the 200 cars on exhibit at this show. The country buyer is certainly in evidence. Although the representative examples of motor car designs at the Music hall show nothing particularly novel in the way of structural principles, it is a mistake to think that the designer's art has done all that it can for the motor car. A feature of the Cincinnati show that should not be overlooked is the number of motor trucks exhibited, and the wealth of motor sundries and accessories on display, which are proving most attractive.

Cincinnati show expected to make Queen City as important in motor trade as it is in carriage industry. Two hundred cars are shown.

Omaha is a veteran in the show game with its fifth annual exhibition, which is larger than ever, 119 cars being on view.

Grand Rapids, Mich., breaks into the circuit with a show that is attended by 12,000 people and which produces \$150,000 worth of business.

Baltimore's exhibition shows motor progress of the Monumental City, 241 cars representing fifty-eight different makes, being on view.

Omaha's Fifth Exhibition

OMAHA, NEB., Feb. 21—The fifth annual show of the Omaha Automobile Association opened its doors at the Auditorium this evening and will be continued until February 26. Omaha has had four previous shows but nothing to compare with the present one in any respect. In 1909 there were twenty-five exhibitors and 22,000 feet of floor space with the product of sixty factories valued at \$300,000. This year thirty-nine exhibitors occupy 31,000 feet of floor space with the product of seventy-five factories, the 119 models on display being valued at \$500,000.

The improvement in the show was not only as to size but the decorations and illuminations are by far the most elaborate ever attempted by the association. The general decorative scheme is green and white, the entire ceiling being concealed by festooned bunting studded with electric lights. Across the front of the Auditorium the visitor finds a green arbor of leaves and vines. Following this down the center aisle, the visitor came to the stage on which the five dealers in accessories have exhibits. The arbor is lighted with green lights. On each side of the arbor are the exhibits, there being three aisles in all.

The spaces occupied by the different exhibitors are divided by large bronze signs all of uniform style and size. The basement of the Auditorium is reserved for the commercial vehicles and big trucks of which there is an extensive display.

Tonight brought out a large number of first nighters, but the large crowd is anticipated Thursday night, which has been set aside as society night. Last year the attendance was 20,000 and this year at least double that number is anticipated.

Of the cars exhibited, the majority of them are all makes that have been manufactured for years.



CINCINNATI HAS A BIG SHOW IN MUSIC HALL

Baltimore Twice the Size of 1909

BALTIMORE, MD., Feb. 22—Promptly at 8 o'clock this evening the second annual show to be held under the auspices of the Automobile Club of Maryland at the Fifth Regiment armory opened amid the din of the horns at the various booths and the playing of patriotic airs by Farson's military band. That this will be the most successful show ever held in Baltimore both from the standpoint of exhibits and attendance is indicated by the conditions of the opening night. All the dealers had everything in place when the signal for the opening was given, so that there were no hitches such as characterize the opening night of such events.

This was members' night and a large delegation of club officials and friends were on hand. The only other special night will be on Thursday. This has been designated as society night and a large representation of Baltimore's select is expected to be on hand. Governor Crothers and Mayor Mahool were invited to be present tonight but they were unable to attend.

While the exhibits this year in every line are just twice in number as those of last year there is plenty of room in the large armory so that there is no crowding and jamming among the visitors. The hall is tastefully decorated in many hues, the predominating colors at the entrance being pink and blue. Over the entrance arch are rows of pink and blue parasols with a becoming border of green foliage. Distributed about the hall are Japanese lanterns and parasols and other pretty decorations. There is plenty of floor space in each aisle while the exhibits are arranged in a comfortable manner at the different booths.

Just what strides Baltimore has taken since the last show can be seen by a comparison of the figures of this year's exhibition with those of last year. At that time it was a fact that the Monumental City had the largest and most successful

exhibition of its history, but this year's events eclipses any previous efforts by a whole lot. By actual count there are just 241 cars on the floor of the huge Fifth Regiment armory on this occasion, representing fifty-eight different makes handled by thirty-six dealers who have space at the show. In addition to the car dealers who have show space there are twenty-one others with accessories, supplies, tires and miscellaneous other articles pertaining to the motor world which swell the total number of exhibitors to fifty-seven. There are twenty-eight makes of cars to be seen this year which were conspicuous by their absence in 1909. Of this number, twenty-three are entirely new cars from a Baltimore standpoint, the agencies for them having been established since the last show.

In placing these figures alongside of those for the 1909 event it is found that the total number of cars on exhibition is doubled with one over; the number of makes shown is larger by eighteen, while the membership of exhibitors is increased by thirteen. For last year there were only 120 cars shown, there were but forty different cars exhibited and the number of exhibitors was forty-four. A rough count shows that eleven of the old makes that were in the limelight of the previous show are not to be seen this year. But this is due in almost all the cases to the fact that the dealers were slow in getting into line and, when they finally made up their minds to get into the bandwagon, they found all the space had been allotted.

Of the five cars that have had agencies in Baltimore for several years past but which have not been exhibited at the local shows may be mentioned the Locomobile, Haynes, Marmon, Matheson and the Knox. Callahan, Atkinson & Co., the



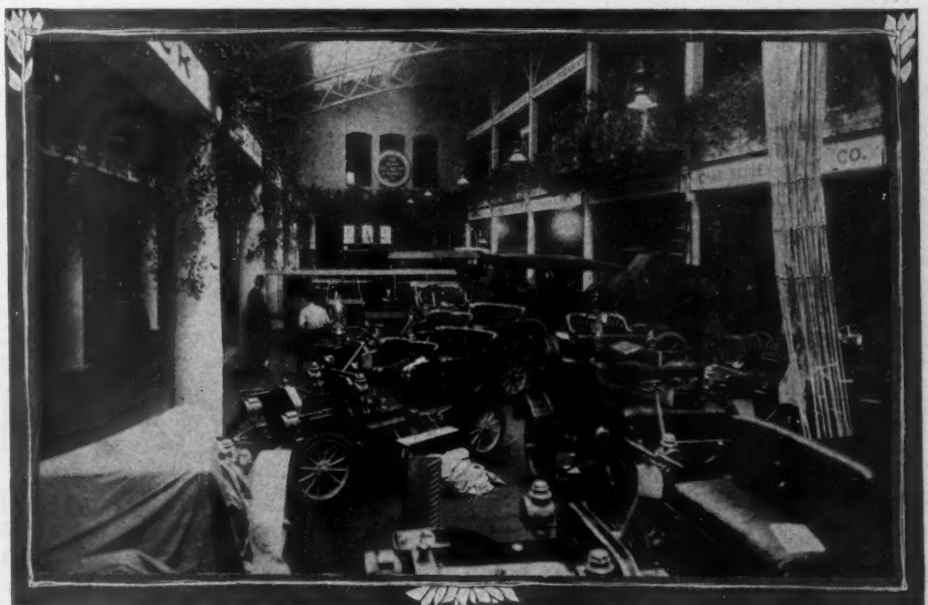
ONE VIEW OF CINCINNATI SHOW

Cars Sold at Grand Rapids

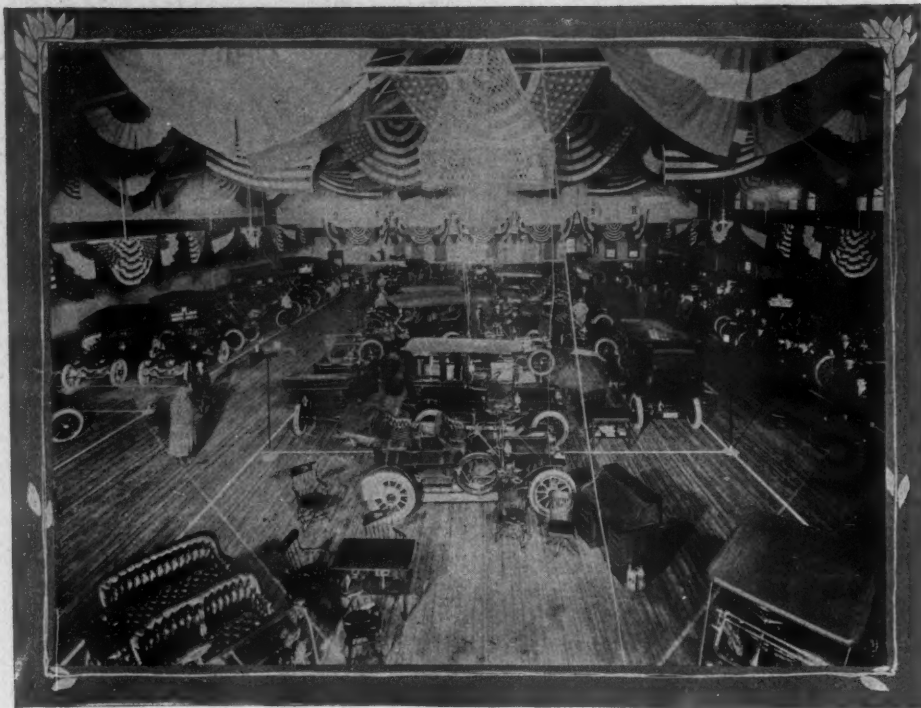
GRAND RAPIDS, Mich., Feb. 24—Grand Rapids' first annual show, held February 16, 17, 18 and 19, was a most auspicious event and was so successful in fact that plans already are under way for a similar show, on a larger scale, to be held next year.

The show this year was a purely local event; that is, local agents, in many cases representatives for western Michigan, exhibited the cars for which they act and, in many cases, they were helped out with exhibits shipped directly from the factories. It is estimated that \$150,000 worth of cars was sold at the show. The attendance was 12,000.

That the show would eclipse all previous efforts along the line of special exhibitions in this city was shown on the opening night, when 3,000 persons filed through the doors leading to the big showroom in the giant Furniture exposition building. And there were \$200,000 worth of cars for the crowd to see. Although few orders were taken on the opening night the success of the initial night paved the way for better things toward the end of the exhibit. And it is safe to say that every exhibitor was satisfied with the amount of business done. The hall probably was the most beautifully decorated exhibition place ever thrown open to the people of western Michigan. The electrical effects included ½-mile of electric festoons, outlining aisles and booths, and electric lights decorated the exterior of the building. The ceiling was turned into a mass of apple green bunting and the pillars were wrapped in green and white. The walls were lined in red, white and blue from floor to ceiling, and shields made of American flags were everywhere in evidence throughout the show.



GROUPING OF CARS ON MAIN FLOOR OF CINCINNATI SHOW



BINGHAMTON, N. Y., HAS A SHOW OF WHICH IT IS PROUD

Locomotive representatives, have four exhibits, all style L, 30-horsepower machines. They are the touring car, tourabout, limousine and chassis.

The other newcomers in Baltimore, namely, the ones that have established agencies here since the last show, include the Apperson, Alco, Crawford, Chadwick six, Demot, Flanders, Graham truck, Hupmobile, Hudson, International, Kline Kar, Moline, Marion, Manhattan truck, Mercer, National, Parry, Rainier, Rider-Lewis, Velie, Washington, Billy and Courier.

Four Maryland Makers

There are four cars to represent Maryland. They are the Washington, Crawford, Spoerer and Maryland. The last two are Baltimore products, the Spoerer being built by the Carl Spoerer's Son's Co. and the Maryland by the Sinclair-Scott Co. The Crawford is a product of Hagerstown, while the Washington is manufactured at Hyattsville, near Washington.

The Spoerer Car

The Spoerer cars being manufactured for 1910 by Carl Spoerer's Sons' Co., of this city, are of the four-cylinder variety, the cylinders being cast in pairs with $4\frac{1}{2}$ -inch stroke and $5\frac{1}{2}$ -inch stroke. The motor is of 40 horsepower. There are two separate systems of ignition with four sets of plugs. The gearset is selective sliding, three speeds and reverse, running on imported Hess-Bright bearings. The lubrication scheme employs force feed pumps, delivering oil to the main bearing and through the hollow crankshaft to the connecting rods. Tires 36 by 4 are used on the top tonneau and roadster and 36 by $4\frac{1}{2}$ on the rear wheels of the seven-passenger car. The springs are semi-elliptic front and elliptic rear and the wheelbase is 118 inches.

There are two models of the 1910 Wash-

ington car, the product of the Carter Motor Car Corporation, with offices in Washington, D. C., and the factory at Hyattsville, Md., these being a four-cylinder 35-horsepower car and a four-cylinder 45-horsepower machine. The models of this car are being shown for the first time in Baltimore by Baumann & Lilly, state agents with headquarters in Catonsville, Baltimore county, Md. The 35-horsepower car, which is known as model A-2, is equipped with Imperial motor, the cylinders being cast in pairs and $4\frac{1}{4}$ by $4\frac{1}{2}$ inches. The gearset is three-speed selective. The front axle is I-beam, fitted with imported German ball bearings, while the rear axles are of the floating type. The axles are of vanadium steel, fitted with imported German ball bearings. The clutch is a multiple-disk with cork inserts. The drive is shaft. The frame is of pressed steel, the wheelbase 112 inches and the tires are 34 by 4 inches. Water cooling is by thermo-syphon system through a flat tube radiator. A self-contained oiling system is used. This type includes the roadster, tourabout, baby tonneau and touring car.

F. W. Sandruck, who also runs the Gaeth and Moline agencies, has one of the latest things in the commercial line here, consisting of a model X 3-ton truck, manufactured by the Gramm Motor Co. The motor used is a four-cylinder, with the cylinders cast in pairs and with a bore of $4\frac{1}{4}$ inches and a stroke of 5 inches, the rating being 45 horsepower. The mechanically-operated valves all are on one side. The oiler is self-contained in the motor and is gear-driven. There is a sliding gearset and magneto ignition. The wheelbase is 120 inches and the 36-inch wheels carry solid tires, duals being fitted in the rear. This being the first appearance of the truck here considerable interest is shown.

Cleveland's Exhibition

CLEVELAND, O., Feb. 19—As the clock struck 8 tonight Mayor Baehr pushed the button which set off 5,000 electric lights and thus opened the first of the two shows that are to be held here this year. The scene released from the darkness in Central armory was that of a Chinese tea garden. The entire ceiling is covered with blue fireproof cambric, spotted with tinsel, which gives a splendid evening sky effect. The lattice work surrounding the balcony and exhibits is draped with white cambric and trimmed with vines of crimson ramblers and Japanese wistaria which complete the garden scene. A large cluster of lights hangs in the center of the armory, combined with the many Chinese lanterns that are strung around the building, while the lights that adorn the many signs of the various exhibitors illuminate the place in grand style.

Although the attendance tonight is as large as that at any of the previous shows' opening nights, there is no semblance of congestion. This is due to a large promenade that had been erected connecting the center of the north and south sides of the balcony. This walk alone makes room for 1,000 more visitors. The show is being held under the auspices of the Cleveland Show Co., which was organized recently.

One hundred and ten cars are exhibited. The machines include all but one of the products of the Cleveland manufacturers. Many cars of local agents also are shown. The Broc Carriage Co. does not exhibit.

It is clearly demonstrated that two shows are clearly necessary in Cleveland as long as there is no larger structure than Central armory here. Although fewer than half the various types of cars handled in Cleveland are shown at the show every bit of space is taken up. The ground floor is used for the cars and the balcony for the sundries. Had there been but one exhibit in Cleveland this year, it is very doubtful if all the dealers and manufacturers could have been taken in and a great deal of dissatisfaction would have arisen.

Some Breezy Aftermath of

St. Louis, Mo., Feb. 21—Notwithstanding last week was the most disagreeable from a weather standpoint St. Louis has witnessed in 20 years, the fourth annual show of the Manufacturers and Dealers' Association, which closed Saturday night, exceeded in attendance by 80 per cent any previous show ever held here. The total paid admissions for the 6 days of the show were 32,000, thus making the average attendance more than 5,000 daily. But the most pleasing feature, to the dealers, was the number of sales made. A total of 225 sales of cars was reported by dealers at the close of the show at midnight Saturday, representing \$500,000 worth of business. The cars sold ranged from runabouts to \$3,000 limousines, and it is declared the number will be almost

Binghamton Holds Show

BINGHAMTON, N. Y., Feb. 22—On the eve of a Washington's birthday Binghamton celebrated also the birthday of its first motor show in the state armory. Its success was pronounced, sixty-two exhibitors showing thirty-two makes of cars and fifty-nine models, together with a varied line of accessories. The hall is decorated in military fashion and is attractive.

On the main floor are shown the completed cars while in the basement are the accessories and some cars crowded out of the main floor. At one side of the basement, in the riding academy, is one of the most unique exhibits shown at any show in years. It is a string of cars dating back to an unnamed two-cylinder affair of the vintage of 1898 on through the whole gamut of early development up to the present state of higher refinement, comprising in the showing an old steam Locomobile runabout, Oldsmobile two-cylinder, three-wheel Knox, Pierce runabout, double-side chain driven Searchmont, Corbin, Packard and Pierce. Columns might be written of the story these mute models tell.

Here also is to be found a four-cylinder Curtiss aeroplane with a British American 26-horsepower motor. The main planes are 26 feet and it is 28 feet over all.

A. E. Wheeler, of the Syracuse district, Franklin manager, has outside of the armory one of the novelties of the year. Standing in front of his electrically-lighted glass-hooded Franklin six demonstrator is a boy with a bellows filled with smudge punk such as is used in hiving honey bees. The boy keeps this black smudge burning so that it is sucked into the hood and thence down alongside each of the cylinders. It is a powerful demonstration of the air-cooling feature of the car and is sufficient magnet to blockade the street.

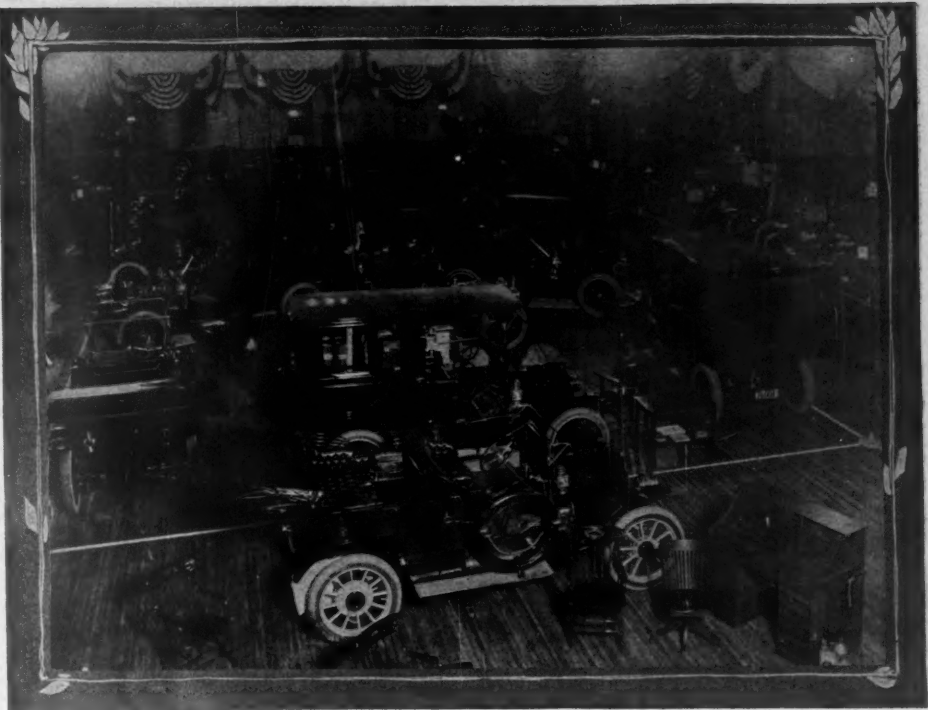
For a town of its size Binghamton certainly has done wonders in this exhibition which is held under the joint auspices of the Binghamton Automobile Club and the Chamber of Commerce.

Several Other Big Shows

doubled when the prospective purchasers who complete partial arrangements for cars during the show close the deals in progress.

The men who are responsible for the show are jubilant over its success. The one disappointing feature was a lack of room, but this will not prevent another show being given next year. It is hoped however, more suitable quarters than the First Regiment armory will be provided for before the date for the next event.

It is no secret that whether there should be a show next year had depended upon the result of the one just closed. Dealers feared it would be "all show and no business," but the eager manner in which St. Louisans, as well as persons from out of town, came forward to purchase cars



LOOKING DOWN FROM GALLERY AT BINGHAMTON SHOW

convinced the skeptical. Now all are enthusiastic in their declarations that the annual show, if not a necessity, is at least a great business builder.

A noticeable feature was the wide range of the buyers; that is, the varied vocations of those who purchased cars or started negotiations which will inevitably result in sales. Included in the list are bankers, bank clerks, farmers, merchants, physicians—virtually every walk of life being represented. One firm sold twelve cars and started negotiations for the sale of a dozen others.

Kansas City Scheme

Kansas City, Mo., Feb. 20—A force of decorators from Chicago are now at work in the roof garden of Convention hall busy in the preparation of the trimmings for the fourth annual show of the Kansas City Automobile Dealers' Association that opens in the big hall Monday, February 28. About 100 trees that are to enter in the woodland setting have been uprooted in Jackson county—half of 'em tall elms and the remainder apple trees. The trees are being garnished with foliage of southern smilax and hung with thousands of pink apple blossoms. A slight change in the decorative idea has been deemed necessary. There will be no fountain at the north end of the balcony pavilion, to be built entirely around the hall, as the height of the pavilion would spoil the effect of the fountain from the arena. Instead a papier-mache runabout suspended from a north girder, occupied by a woman's figure and driven by a flock of doves, will interest visitors.

Great crowds from out of town are looked for during show week—the anticipation being gauged by the great number of requests for information and tickets re-

ceived by Kansas City dealers. The show has been well advertised in Missouri and Kansas. A three-color show poster, with a picture of a pretty girl standing in front of her landaulet while the footman waits at the tonneau door, has been sent by the thousands to small towns in adjacent states.

The show is to cost the Kansas City Automobile Dealers' Association \$20,000 and will mean an expense individually to the dealers in about the same sum. A special feature of the exposition will be the great quantity of accessory exhibits, which is particularly remarkable, as the department is not sanctioned by the accessories makers. Space for car exhibits has been over-contracted for. A. M. Blake, show secretary, will cancel some of the options held for space by manufacturers this week.

Buffalo Pleased with Show

Buffalo, N. Y., Feb. 20—President Monroe and other members of the Buffalo Automobile Trade Association express themselves as highly pleased with the success of the motor car show which closed at the Broadway Arsenal Saturday night. From a business viewpoint the exhibition was the best of its kind ever evolved in this city. It was a case of buying and selling through the entire week. The opinion was expressed that the exhibitors could use a larger hall next year.

One of the features was the number of farmers present. In the vicinity of Buffalo are hundreds of grape-growers and fruit and garden truck men, and many of these attended the show to buy cars that they could use for either business or pleasure. As Buffalo is located in the heart of an enormous buying community, the retail end of the exhibition naturally was very heavy.

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Features of the Racing Rules For 1910

ON another page of this week's issue appears a summary of the 1910 rules governing speed contests as they will be conducted by the new contest board of the American Automobile Association. The student of racing rules will see a great many changes in these rules as compared with former years, the most of which have been introduced as safeguards to the legitimate supporter of speed contests. Last season the era of stock chassis races began and although the enforcement of these rules throughout the season was not as satisfactory as many would have liked, it cannot be denied that the stock car situation advanced to an enormous extent.

IN the new rules perhaps nothing is more important than the progressive system of arriving at the number of cars of any one model that will constitute a stock one. The maker who builds a few hundred cars can have any particular model of his passed upon as stock if he builds fifty of such; but the manufacturer who turns out cars above a 10,000 output will have to manufacture over 400 of any one model before it will be considered a stock model. Between these extremes come the great masses of makers, and in proportion to the number of cars they build for a season is the number of any one model necessary in order that it be designated a stock model. At first sight it may appear a hardship to ask a concern to build 400 cars of any model, whereas another concern gets in with fifty. But it is not, for the factory turning out 10,000 cars in a season could turn out ten or fifty special cars in a day or so, whereas the small builder would spend weeks or perhaps a month or so on such an output. The new plan is a progressive one and should not work a hardship on any particular class of maker; and while it does not work any hardships it does a wonderful amount of good. It will now be impossible for any maker to turn out a few cars of special design and class them as stock propositions. It does not appear just how the committees in charge will verify the output of any one company, but it is understood that the technical committee will have to make visits to the different factories in order to settle the matter.

ONE more change in the present rules, and a change that should have been introduced years ago, is the registering of drivers. Heretofore no attempt has been made to try to keep any check on the drivers; and cases are on record where drivers have been suspended on a western track for foul driving and that same driver has contested in an eastern meet without his good standing being returned to him or without his even being asked regarding the matter. This chaotic condition of affairs will end and now the driver who is suspended for foul driving in one section of the country will stand suspended in all sections until such time as the suspension is lifted. Not only will this keep the driver situation on a higher level, but no promoter will be allowed to conduct a meet without first furnishing the contest board with a list of the drivers to ascertain that they are all in good standing.

UP to the present time the amateur situation has been in anything but a healthy state and it too has been strengthened, in that an amateur cannot now be actively engaged in the motor car or accessory business. To go still further, he cannot drive

a car of anybody who is engaged actively in either the motor car or accessory business. This change of front puts an end to makers getting hold of amateur drivers and placing their cars in their hands for advertising reasons solely. Today America is in need of an amateur class of contests and this desirable condition will never come until the lines defining amateurs are closely drawn and the rules lived up to.

IN the definition of a stripped stock chassis there is one rule of special prominence, namely, that which says that the dash must thoroughly enclose the rear end of the bonnet, that it must be carried and all the devices on it. Last year several drivers took the dash off entirely, so the motor would cool better and so the mechanic would have an opportunity to work on the motor while the car was running. As a result of not having a dash, the oil from the engine came back into the faces of the driver and mechanic, covering their goggles with oil, which in one case was directly responsible for an accident which resulted fatally to some bystanders. The dash should be a stock dash, and no contestant should be allowed extra cooling facilities by cutting away the dash or removing it entirely.

THE manufacturers have at last learned also that weight is not so big a factor in cars and that the lighter the car the better. This is shown by the fact that the weight requirements for each class have been cut down 100 pounds as compared with last year. Last year the weight limit was too high with low-powered cars, many of which had to carry ballast.

IN addition to the big alterations as already outlined, an army of small changes has been made, all of which will do much towards the insurance of stock car events. By far the most far-reaching event is the stock car registration sheet, which the contest board has arranged and which every maker must fill out for each stock car model. In a word this registration blank calls for upwards of 200 questions regarding each model, which information will give the contest board an absolute check on the models of all concerns. This method of registration was begun last year in connection with the Cobe trophy race, at which time each entrant had to answer over eighty questions on the status of the stock car entered. With these measurements the technical committee in charge has some guide to assist in passing on the stock car status of any maker's models and should any points of protest arise there is at hand the absolute information governing the particular model. It is useless to try to conduct stock car races unless the manufacturer is willing to do his part. It is foolish for any body of men styling themselves contest board or technical committee to try to insure stock car events unless the car makers are ready to do their part. The legitimate makers and those who desire stock events will welcome this stock car sheet, and only those who are in some wise trying to evade the spirit of the stock car definition will in any wise object to such registration scheme. With every detail of a stock car so recorded, and with the maker's affidavit attached thereto, little opportunity remains for racing managers or others to pass anything that does not come up to the stock requirements. Should a protest arise, the promoter or referee has all the necessary information at hand to settle the case.

COLONEL CLIFTON ON THE SELDEN SITUATION

BUFFALO, N. Y., Feb. 22—Many promoters, pointing to the profits made by a few of the old-time manufacturers, encourage the formation of companies and try to induce innocent people to place their money in the enterprises, holding before them the alluring idea of getting rich over night. Such affairs, it seems to me, are doomed to failure and the stockholders are almost certain to lose every dollar they supply.

The success of a few old companies, headed by excellent business men, has induced others to start manufacturing, even since Judge Hough's decision. Some of them may propose to put out good cars and others to put out inferior ones. Scores of such companies may not get beyond the experimental stage and many who do get out a few cars may depart from this business life, leaving behind them products for which no parts can be obtained. Those who would start companies at this time, forget that the makers now getting profits from the business are old-timers, who after years of work, have built up a line of tried products and an organization for handling them, which cannot be duplicated without a great amount of work at this keen competitive period of the industry.

Encouraged by Patent Attorneys

Some patent attorneys, not appreciating the importance of the decision, or for other reasons, have evidently encouraged people to manufacture cars in the face of this decision; a procedure which may result in a heavy loss for those who are endeavoring to enter the field at this late date.

The trade is well informed on the patent question, and since the decision, more than forty concerns have applied for and have been granted licenses. The Association of Licensed Automobile Manufacturers has the right through its executive committee to say who shall and who shall not be granted the protection of the patent, although the licenses are granted by the Columbia Motor Car Co.

On the other hand some innocent buyers of motor cars have failed to appreciate the importance of Judge Hough's decision and have bought cars that infringe the patent. How unnecessary it was for them to purchase such cars is evidenced by the fact that seventy-six standard American cars and two imported cars are now licensed. These factories are producing cars of all classes and for all prices, from \$485, the lowest-priced car in America, to the most luxurious machine of the motor car and coach-builders' art, with the makers in strict competition with each other, a fact well-known by the trade and buying public.

In the buying of cars it can be readily seen that there is no occasion, with almost every important maker having a license, for any person to take chances of litigation by the purchase of an unlicensed car,

EDITOR'S NOTE—Charles Clifton, president of the Association of Licensed Automobile Manufacturers and treasurer and general manager of the Pierce-Arrow Motor Car Co., has for the first time since Judge Hough's decision in the Selden patent situation spoken on this subject. Before leaving for a month's cruise to the West Indies and Spanish Main, Mr. Clifton issued the accompanying statement from Buffalo:

to say nothing of the difficulty of trading that car in exchange for a licensed car when a new purchase is contemplated. Last year the licensed manufacturers made almost 95,000 cars or about 85 per cent of the estimated production, and this year are expected to market not fewer than 160,000 machines.

With a view of protecting the public and thereby increasing the popularity of the motor car, it has not been the policy of those who controlled the patent to extend its protection to new and untried, or doubtful products.

One shouldn't be pessimistic on the future of the motor car, but it doesn't take much of a prophet to figure that the going concerns in the business today, almost all of which are licensed under the Selden patent, should be fully able to care for the demand for motor cars.

The Selden patent was issued to George B. Selden, of Rochester, N. Y., in 1895, and has almost 3 years to run. It is owned by Mr. Selden, but the exclusive license under it is the Columbia Motor Car Co., which grants licenses. The makers who are given the protection of the patent are included in the Association of Licensed Automobile Manufacturers.

Warns Investors

To prevent the unthinking from investing in new motor car companies or buying unlicensed motor cars, it is deemed proper to issue this statement so that everyone may be advised as to the facts and past history of the litigation which resulted in Judge Hough's decision of last September wherein he upholds the validity of the patent, declaring it to cover the modern gasoline motor car. Suits may be brought under this patent for infringement by manufacturers, by dealers, or by users of pleasure or commercial gasoline motor cars, and it is the intention of the owners of this patent to protect the exclusive rights secured by it to those who have become licensees, by commencing suits against infringers of it.—Charles Clifton.

ENGLAND'S 1909 BUSINESS

London, Feb. 9—The past year has been a much better one for the motor trade of Great Britain than the year 1908, especially among those interested in the exportation of cars, chassis and parts. The total value of these three items, according to the government reports, is \$7,819,035, or \$1,526,240 more than in 1908, when the total export business showed a decrease of

\$331,995 over the previous year's export business. The import business of 1909 was also much heavier than in 1908, when the British manufacturers and agents and foreign representatives imported \$2,201,625 less of cars, chassis and parts than in 1907. The total for 1909 shows \$21,583,045 has been the value of the imported cars, chassis and parts, which represents an increase of \$1,020,740 over the corresponding 12 months of 1908.

It may be of interest to the American car and parts manufacturers to know that in 1909 Great Britain imported 3,666 complete cars and 4,855 chassis, or respectively 164 fewer cars and 1,485 more chassis than in 1908. The average value of the 1909 imported car was \$1,668, or \$146 less than the average value of the 1908 car that was imported. As for the chassis the difference is even greater, as the average value of the chassis imported in 1908 was \$1,577 and in 1909 the average value is only \$1,361, or a difference of \$216. Last year parts to the value of \$8,859,800 were imported, showing an increase of \$560,640 over the importations of parts in 1908.

During 1909 2,583 cars were exported from Great Britain, their value amounting to \$4,769,230, or an average of \$1,848 per car. In 1908 only 2,216 cars were exported, their value being \$4,003,180, or an average price of \$1,806 per car. Only 219 chassis were exported last year, six fewer than in 1908. Their value, however, was \$420,865, or \$40,950 more than the 225 chassis exported in 1908. The average value per chassis was \$1,921 in 1909 and \$1,688 in 1908. The largest increase in the British exports interesting the motor car industry is in parts. The records show an increase for 1909 of \$719,245, the total being \$2,628,940, as compared with \$1,909,695 in 1908.

As will be noticed from the accompanying tables, one of which shows the total value of the imports and exports since 1904, Great Britain's export business is making big gains.

| Year | Imports | Exports |
|------------|---------------|--------------|
| 1904 | \$ 12,119,700 | \$ 1,609,830 |
| 1905 | 16,835,615 | 2,513,570 |
| 1906 | 21,858,300 | 4,100,100 |
| 1907 | 22,763,930 | 6,624,790 |
| 1908 | 20,562,305 | 6,292,795 |
| 1909 | 21,583,045 | 7,819,035 |

Total, 6 years..\$115,722,895 \$28,960,120

IMPORTS

Great Britain's trade in 1909 and 1908 in detail:

| | 1909 | 1908 | Value, 1909 | Value, 1908 |
|------------|-------|-------|--------------|--------------|
| Cars | 3,666 | 3,830 | \$ 6,115,265 | \$ 6,947,760 |
| Chassis .. | 4,855 | 3,370 | 6,607,980 | 5,315,385 |
| Parts | ... | ... | 8,859,800 | 8,299,160 |

Totals ..8,521 7,200 \$21,583,045 \$20,562,305

EXPORTS

| | 1909 | 1908 | Value, 1909 | Value, 1908 |
|------------|-------|-------|--------------|--------------|
| Cars | 2,583 | 2,216 | \$ 4,769,230 | \$ 4,003,180 |
| Chassis .. | 219 | 225 | 420,865 | 379,915 |
| Parts | ... | ... | 2,628,940 | 1,909,695 |

Totals ..2,802 2,441 \$ 7,819,035 \$ 6,292,790

Legal Conclave Aids Motoring

WASHINGTON, D. C., Feb. 19—There is a persistent rumor floating around the capitol that the committee on inter-state and foreign commerce will report unfavorably the Cocks federal motor vehicle registration bill. Even if this is so the first legislative convention of the American Automobile Association will not have been for naught, as it has given a decided impetus to the movement for uniformity in state laws.

The convention came to an end Thursday, when the delegates appeared before the house committee on inter-state and foreign commerce. Representative Cocks, author of the bill for which the motorists were pleading, acted as master of ceremonies and introduced the three speakers. President L. R. Speare was first up, and he made a good talk on a subject that is very near to his heart. He told the committee many facts about the development of motor vehicle traffic and laid special stress upon the many vexatious regulations to which motorists touring from state to state are subjected.

One Fee For All

A member of the committee brought up the question of a graduated tax and President Speare emphasized his objection to a graduated tax upon motor cars, contending that the proposed federal tax should be the same for each machine. He pointed out that in his state—Massachusetts—there is a tax graduated according to the horsepower of the machine. "The horsepower of a motor car practically has nothing to do with the damage which machines do to the roads," declared Mr. Speare.

Hostility to the measure was manifest when Charles T. Terry was introduced to make the main argument for the bill. Some of the members of the committee endeavored to becloud the issue by asking questions that indicated their total unfamiliarity with the terms of the bill. Question after question was fired at Mr. Terry and he was not able to make a set argument in the time allotted him. He answered the questions fired at him in an able manner. Chairman Mann asked Mr. Terry why, if the states interfered with motorists under other than their police powers or were unjust in the exercise of those powers, the motorists did not take the matter into the state courts. Mr. Terry replied that in such an event the same cases would have to be fought out all over the country, and that a federal registration bill would clear up the whole situation at once.

Congress Has Right

"I hold," said Mr. Terry, "that congress has as much right to pass an inter-state motor car act as it had to control water traffic." Chairman Mann, however, disagreed with him on this point. "The main purpose of the bill," continued Mr. Terry, "is identification. It will clear up

that vexatious question and would be a real assistance to state officers in charge of the public highways. If you pass this bill, either as it is or in such amended form as the members of congress deem desirable, the motor vehicle laws of all the states will gradually approach uniformity. These licensing laws will soon become the same, and we will have regulations in all the states that will permit a man to drive a car from one end of the country to the other without annoyance to himself or breach of the law."

Estimates 600,000 Cars

Every member of the committee sat up and took notice when Mr. Terry said: "There will be approximately 600,000 motor cars in operation in this country before the close of 1910. Suppose even one-third of that number carried federal licenses, for which were paid \$5 each. There would be a fund of \$1,000,000 to start with. I favor an annual license of \$5 a year. You can readily see that with the great growth of the motor car industry and the increasing desire for inter-state touring the amount of money that could be distributed throughout the country for the improvement of the roads would be tremendous."

Representative Richardson, of Alabama, a member of the committee who is inclined to favor the bill, took Mr. Terry in hand and brought out several facts in favor of the legislation asked. Under his questioning Mr. Terry showed that as soon as the federal law had been enacted the states would tend to more uniformity in motor car laws. Representative Richardson suggested that this had been the case when the pure food law was enacted. Before that measure became a law, he said, there was a great diversity of state laws on the subject of foods. Mr. Richardson suggested that one of the bureaus of the department of commerce could handle the federal registration of motor vehicles and thus obviate the necessity of creating a new bureau. Mr. Terry agreed to this and suggested that the work could be done by the office of public roads in the department of agriculture.

Terry Answers Questions

In reply to a question of Chairman Mann, Mr. Terry said that the proposed law does not interfere with licensing motor car drivers by the states in which they may drive, but that it merely provided a method of identification in case any of the state laws were violated. He emphasized the fact that one tag as a means of identification was far better than four or five. Chairman Mann said he questioned the power of congress to enact a law which would grant to one man the privilege of inter-state travel dependent upon his having complied with the laws of a state. He pointed out that the requirements, if such were the case, would be different in the

different states, and that there would be discrimination in the issue of federal licenses, but this was vigorously denied by Mr. Terry.

A constitutional argument in favor of the bill was made by Neal Brown, of the Wisconsin bar association. He set up a good plea for the proposed legislation and made a very favorable impression.

Secretary Wilson Interested

At the close of the hearing President Speare, Secretary Elliott and Mr. Terry called on the secretary of agriculture and Logan Waller Page, head of the office of public roads. They explained the bill to Secretary Wilson, who appeared to be greatly interested. He said he would look carefully into the question, but made no promises, adding that he did not feel justified in expressing a definite view until he had studied the subject. The proposed legislation has a warm friend in Director Page, under whose bureau the license bureau will likely be made.

President Speare, Mr. Terry and their associates expressed themselves as being well pleased with the results of the convention.

Legislative Convention a Success

Wednesday's session was replete with interesting discussions. One of the morning speakers was Representative W. G. Brantley, of Georgia, who is a member of the judiciary committee. A storm of applause greeted him when he declared: "Congress has as much right, I believe, to enact into law a bill for federal license of motor cars doing an inter-state business as it has to enact into law a rivers and harbors appropriation bill. The time will come, I predict, when congress will be compelled to take hold of the inter-state commerce of motor vehicles and regulate and protect it."

Continuing, Representative Brantley said: "I have no personal interest in the movement for a federal license, but only the interest of a citizen and as a legislator. As I am not a motorist it occurs to me that the only reason I am here is the constitutional question that may be raised in the federal license fight. When there were hearings on the Cocks bill before the house judiciary committee about 2 years ago, I was impressed by the remarks of Mr. Hotchkiss, who was at that time, I believe, president of your organization. He made a strong argument in behalf of the measure. Now the same bill is before the committee on inter-state and foreign commerce. It occurs to me in view of this reference of the bill, that some power must have determined that no constitutional question is involved in the proposed law, and in that I agree. I am a states' rights man, but I am also a United States' rights man, and so is every good citizen of this country."

Police Power Defined

"Police power in a state is the power of sovereignty that exists in that state

that has not been delegated to the national government. We find that large police powers were delegated to the government of the United States and that one of the reasons for the constitution was to give congress the right to control inter-state commerce. It may be that some day men will come to congress to get that body to control the inter-state commerce of airships. And I don't doubt that congress will have more difficulty regulating airship traffic than it will have regulating motor vehicle traffic. The United States supreme court has held in the case of an inter-state bridge that when citizens walked across that bridge they were engaged in inter-state commerce just as much as if they had crossed the bridge with their arms full of merchandise. And so when a motor car passes from one state into another it, too, is engaged in inter-state commerce and can be regulated by the government."

Traffic Rules Discussed

Traffic rules was the subject discussed by Walter Phelps Eno, who has made a close study of the matter. Among other things, he said: "All laws and regulations in regard to motor vehicles should be uniform as far as possible. First of all, the New York traffic regulations and rules of the road should be adopted everywhere, such minor changes being made as are necessary for the different cities and towns, but the main and underlying principles kept identical. Enforcement of traffic regulations alone will do away with a very large proportion of the accidents. I favor a law making it a penal offense for a dealer to give or for a servant to receive any gratuity, commission or discount. If there is to be any rebate it should go to the person who pays the bills."

L. H. Kittredge, president of the Peerless Motor Car Co. and head of the N. A. A. M., made a brief address in which he said that the manufacturers were much interested in the proposed legislation.

BERGER CHOSEN PRESIDENT

Philadelphia, Pa., Feb. 22—At its next motor meeting the Quaker City Motor Club will begin its fiscal year under its recently elected officers, as follows: President, L. D. Berger; first vice-president, G. Douglass Bartlett; second vice-president, J. Fred Betz 3d; treasurer, A. T. Stewart; secretary, H. C. Harbach; board of governors, G. Hilton Gantert, Fred C. Dunlap, A. T. James, Frank Hardart, R. E. Ross, A. E. Maltby, George M. Graham, Paul B. Huyette, Evans Church. President Berger has announced the following committee chairmen: Contest, R. E. Ross; routes and tours, Evans Church; press, George M. Graham; law and ordinance, G. Douglass Bartlett; house, Frank Hardart; technical, Percy C. Colket; good roads, A. E. Maltby; membership, A. T. James; auditing, Fred C. Dunlap; pathfinder and pilot, J. Fred Betz 3d; starter, G. Hilton Gantert; associate contest board A. A. A., P. D. Folwell.

Facts About Exports and Imports

WASHINGTON, D. C., Feb. 19—Motor cars are a rapidly increasing factor in international commerce, the value thereof entering the world's markets in 1909 having exceeded \$50,000,000, as against \$9,000,000 in 1902. In this trade cars of American manufacturers supply each year a larger proportion of the world's requirements. A special compilation just made by the federal bureau of statistics shows that the value of motor cars and parts exported in 1908 from France, the United States, United Kingdom, Italy and Germany, the five leading countries engaged in their manufacture and sale, aggregated more than 45,000,000, which is a growth of 400 per cent since 1902. Motor car exports from the four foreign countries named, taken as a whole, increased from \$8,000,000 to \$39,000,000, a gain of 385 per cent, while those from the United States increased from \$1,000,000 to \$5,500,000, a gain of 450 per cent.

The exportation of motor cars from the United States has developed chiefly in the last ten years, the first record thereof having been made in 1902, when the total value was \$1,069,782. In 1905 the annual export had increased to nearly \$3,000,000, and last year to nearly \$9,000,000. The foregoing figures include shipments to the non-contiguous territories and relate both to motor cars and parts thereof sent out of the country.

Meantime importations of foreign-built motor cars have decreased. In 1906, the earliest calendar year for which details are available, the total imports of cars and parts aggregated \$5,000,000, but since that time have fallen to \$4,000,000 in 1907 and the same amount in 1909. In the 4-year period, 1906-1909, inclusive, imports of motor cars aggregated \$16,000,000 and domestic exports thereof \$25,000,000, an excess of exports over imports of \$9,000,000, of which excess \$5,000,000 developed in the calendar year just ended.

France leads the world as an exporter of motor cars, with the United States second in rank. Official statistics show that the exports of motor cars and parts in the latest year for which details are at hand were: From France, in 1908, \$24,569,000; United States, in 1909, \$8,667,397; United Kingdom, in 1909, \$7,610,267; Italy, in 1908, \$5,533,000; Germany, in 1908, \$3,031,000.

The wide distribution of the motor cars exported from those manufacturing nations offers indirect evidence of improved methods of travel and transport in various parts of the world. The United States, while exporting most of its motor cars to Canada, United Kingdom and continental Europe, sends considerable quantities to its several noncontiguous territories, and to the West Indies, South America, Australia and various countries of Asia, Africa and Oceania; while France, Great

Britain, Italy and Germany, in addition to their exports to the United States and Europe, send cars to many of their colonies, to numerous tropical communities and to South America. Last year this country shipped \$614,424 worth of cars to Hawaii, \$249,713 to Porto Rico and \$16,643 to Alaska.

France's exportations of cars, valued at \$24,569,000 in 1908, were distributed as follows: United Kingdom, \$11,784,000; Belgium, \$2,229,000; United States, \$2,124,000; Germany, \$2,018,000; Argentina, \$837,000, while Algeria and other French colonies, India, Egypt and European countries received practically all of the remainder.

Italy exported most of her motor cars to European countries, \$1,297,000 worth going to the United Kingdom, \$985,000 to Switzerland, \$556,000 to Germany, while to the United States the exports were valued at \$664,000 and those to Argentina, \$571,000, these five countries representing nearly four-fifths of the entire motor car exports of Italy during 1908, valued at \$5,533,000. From the United Kingdom the exports of cars and parts in 1908 were valued at \$6,124,000, of which \$592,000 worth went to British India, \$573,000 to New Zealand, \$176,000 to this country and \$123,000 to Canada.

The exports from Germany in 1908 were valued at \$2,936,000, together with parts valued at \$95,000. The greater part, valued at \$567,000, went to European Russia, while France took \$517,000 worth, Austria-Hungary \$474,000 and the United Kingdom \$448,000, while to Italy, Switzerland, Roumania, Argentina, Belgium and the United States, in the order named, were shipped the remainder of the export product.

FISK SUFFERS FIRE LOSS

San Francisco, Cal., Feb. 13—The Fisk Rubber Co.'s branch in this city was entirely gutted by fire on Wednesday night. The flames originated in a defective heating appliance in the stock room, and when discovered at 11:30 o'clock at night they had virtually consumed the entire contents of the stock room. The building is a very substantial one and the stock room was shut off from the large vulcanizing department and the offices by heavy fire walls and fire doors. The vulcanizing department did not suffer from the fire, but the handsomely finished offices were badly damaged by water and smoke. These offices were finished in Australian blackwood, while the walls and ceiling were artistically frescoed. The big offices were among the handsomest of the motor car establishments of the city. The loss will probably be about \$35,000. Temporary quarters on Van Ness avenue have been secured and the company's business will be continued.

Summary of New Contest Rules

NEW YORK, Feb. 19—What might be designated an opening shot in the racing situation for 1910 came from the American Automobile Association today in the form of a summary of the racing, hill-climbing, track and long-distance race rules issued by Chairman Butler, of the contest board. As was expected, many changes have been introduced in these rules and the status of the stock car more thoroughly defined than ever before. Last year a maker had to have twenty-five of any model in order that it could pass as a stock product, but this year a percentage system is adopted which calls for 450 cars of one model if the output is 10,000 or more, whereas if a manufacturer builds but 500 cars fifty will constitute a stock type. This change has been introduced in order to make the definition more equitable to manufacturers with different outputs.

The options permitted for the stripped stock chassis remain practically as last year, excepting in that bonnet straps must be added and that part of the dash inclosing the rear of the bonnet together with all its equipment must remain intact.

The piston displacement classification remains unaltered, excepting in that 100 pounds has been dropped from the weight of each class, the 161 to 230 minimum being 1,400 instead of 1,500 pounds. Those familiar with the other weights will realize that this has been carried out throughout.

A most important change, and one which will add materially to the control the contest board has on the drivers, is in the driver's registration, each driver having to register with the contest board for each year and being given a driver's certificate for that time.

The amateur definition has been changed so that no one who is now actively engaged in the motor car or accessory business may compete, nor can an amateur drive a car owned by anybody actively engaged in the motor car or accessory trade.

The following is a brief summary of the principal amendments to the 1910 contest rules adopted by the contest board, and approved by the board of directors of the American Automobile Association and the Manufacturers' Contest Association at Chicago, February 9, 1910:

Status of Stock Car and Stock Chassis—To insure the competition of bona fide stock cars, manufacturers are required to file with the contest board a complete description of their various stock models intended for competition, their status as

stock cars being based on the ratio which the quantity production of the individual model bears to the total annual output of the maker, as given in the table. Promoters will be furnished by the contest board with copies of these official descriptions, and cars when examined by technical committees throughout the country must conform to such description to be eligible to start in any stock car or stock chassis event.

Stock Car—"A motor car, the complete description of which, upon the official blank provided for the purpose, has been filed with the main office of the technical committee of the contest board at least 30 days prior to the date of the contest entered, the quantity production of which bears to the total yearly production of its manufacturer the ratio set forth in the following table, and which is on sale through the regular selling representatives of the manufacturer."

Official blanks for stock car description may be obtained from the chairman of the contest board, 437 Fifth avenue, New York city.

Computation in connection with the following table shall be based upon a period of time from July 1 to June 30 of the following year.

In computing the annual output of a manufacturer, no account shall be taken of his production of taxicabs, delivery wagons or other vehicles designed for commercial use.

At the discretion of the contest board any competitor may be required to file a bond of \$5,000 that the entry made by him is a bona fide stock car within the meaning of this definition:

| Total Output | Percentage | Number of Same Model |
|----------------|----------------|----------------------|
| 10,000 or more | 4.5% equaling | 450 minimum |
| 8,000 to 9,999 | 5.0% equaling | 400 minimum |
| 6,000 to 7,999 | 6.0% equaling | 360 minimum |
| 4,000 to 5,999 | 7.0% equaling | 280 minimum |
| 2,000 to 3,999 | 8.0% equaling | 160 minimum |
| 1,000 to 1,999 | 9.0% equaling | 90 minimum |
| 500 to 999 | 10.0% equaling | 50 minimum |
| 250 to 499 | 16.0% equaling | 40 minimum |
| 100 to 249 | 30.0% equaling | 30 minimum |
| 50 to 99 | 50.0% equaling | 25 minimum |

Explanation—Percentages are calculated on actual total output. For example: If the total annual output of a manufacturer is 2,500 cars, at least 8 per cent of said output, or 200 cars, must be of the same model in order to constitute such model a stock car under this definition. The required percentage of output shall in every case be in accordance with the above table and in no event shall it be fewer than twenty-five cars.

The use of different bodies—touring car, miniature tonneau, runabout, etc.—upon the same chassis shall not constitute a difference of model under the meaning of this definition, but cars thus equipped must be entered in the respective classes to which the body equipment renders them eligible. Miniature tonneaux, surreys, double or single rumbles shall, for the purpose of these rules, be considered runabouts. Tops, windshields and extra tires may be removed, whether or not they may be furnished as regular equipment. Otherwise, care must be in construction, material and equipment exactly as offered for sale to the public.

Copies of the official certificate of description, above mentioned, will be furnished by the contest board to the promoter of any contest upon receipt of his entry list, and the cars entered must abso-

GIST OF THE NEW RULES

The piston displacement classification of 1909 is continued, but 100 pounds is cut from the minimum weight of each class.

Price classification is continued for touring contests.

All drivers must now register annually with the contest board.

An amateur cannot now be actively engaged in the motor car or accessory business or drive the car of one who is so engaged.

lutely correspond to the detailed description therein contained; otherwise they shall not be permitted to start in the contest and entry fee paid shall be forfeited to the promoter.

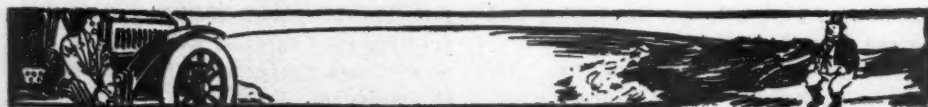
Stripped Stock Chassis—"A motor car chassis which, except for the options listed below, can, by adding the necessary parts, be assembled into a complete stock car." See stock car definition.

Options permitted: Lighter springs; piston diameters; change of steering post angle; length and angle of change-gear, brake and other control levers; change of driving gear ratio, wheel diameters excepted; length of clutch, brake, accelerator and other pedals; tire and rim equipment; style of dash, seat and body equipment—see rule governing dash requirements; form, volume and location of fuel and oil tanks—system employed in either case must remain unchanged; exhaust header and exhaust pipe—except as limited by rule 69 governing direction of exhaust; use of shock absorbers; winding of springs. Bonnets must be carried throughout a contest, but may be cut away at the side for the passage of exhaust pipes. See rule 70 governing loss of bonnet. Bonnet straps must be added. Special wheel fenders or radiator protectors of any design may be used, provided they are securely attached to the car in a manner satisfactory to the referee.

Note on Lubrication—Where a reserve oil supply is provided, a pipe connection with hand-pump may be employed to transfer the lubricant to the standard oil receptacle regularly supplied by the manufacturer with the car, but in no instance will it be permitted to connect a reserve oil supply directly with the parts to be lubricated unless such connection may be the standard lubrication equipment under the stock definition.

Dash Requirements—The only alteration permissible in the dash of a stripped stock chassis is that its contour may be made to conform to that of the bonnet; no perforations in the dash will be permitted; standard stock car dash equipment must be carried.

Additional Parts to Chassis—Dash, seat, body, tank or other permissible equipment shall be of substantial and safe con-



GIST OF THE NEW RULES

Amateurs are required to register with the contest board annually. Track meets are limited to 3 days' duration.

No records are allowed on tracks shorter than 1 mile.

Stock car definition is altered, and percentage of total output is necessary.

Duties of technical board defined. Referee becomes a more responsible factor.

No adulterant in fuel is permitted. Drivers must change in long-distance races.

Promoters of hill-climbs must furnish data.

struction within the approval of the technical committee of the contest board.

Rule 69. Motor Exhaust—The exhaust must be conducted outside of the bonnet and so directed as not to raise dust.

Rule 70. Loss of Bonnet—The bonnet must be carried throughout a contest. If the bonnet becomes detached or lost from a car, the driver shall be required to bring his car to a stop in the shortest possible distance consistent with safety and remain at a standstill until the bonnet has been recovered and replaced.

In a road race he shall not pass the judge's stand until the bonnet has been so recovered and replaced.

In contests on tracks and speedways, a bonnet lost in one lap may be recovered in the next succeeding lap.

4—Bona Fide Status of Stock Car—It is the intention of the rules relating to stock car and stock chassis competitions that such competitions shall be restricted to those cars identical in specification, materials and design with the manufacturer's product which is manufactured in quantity and is offered for sale and sold in a bona fide manner to the public through the regular selling agencies of the manufacturer.

5—Evasion of Stock Car Definition—In the event of evasion on the part of entrants of the spirit of the stock car or stock chassis definition concerning points not definitely stated in these rules, the contest board shall have full power to render such decision as it may deem for the welfare of the sport and industry.

6—Technical Committee—In any case where it may be necessary to establish the status of any car alleged to be a stock car under the definition contained in these rules, the technical committee of the contest board shall have the right to visit the factory of the manufacturer of such car, who shall be required to submit to the committee such evidence as it may require to verify the allegation on which the stock status of the car is based.

The technical committee shall also have power to take possession of any competing car at the finish of its competition in any contest and make such examination thereof as may be necessary to establish its stock status.

CLASSIFICATIONS

Class A. Price Classification—The numbering of the divisions in this class has been reversed, division 1A being made the lowest priced cars and seven divisions are provided in this class, instead of six as heretofore:

Class A—Open to any gasoline motor car other than motor cars with solid tires, wheels 36 inches in diameter and over, which complies with the definition stock car, this class to be run in the following divisions:

| | |
|------------------|------------------|
| Division 1A..... | \$ 800 and under |
| Division 2A..... | 801 to \$1,200 |
| Division 3A..... | 1,201 to 1,600 |
| Division 4A..... | 1,601 to 2,000 |
| Division 5A..... | 2,001 to 3,000 |
| Division 6A..... | 3,001 to 4,000 |
| Division 7A..... | 4,000 and over |

Extra or optional equipment, listed in the manufacturer's catalog as such, used upon a car competing under price classification, must have its list price added to the list price of the car, and this total price shall determine the classification of the car. No extra equipment shall be permitted other than that listed as such in the manufacturer's catalog.

No car shall compete in any class above that to which its price entitles it.

Class B. Piston Displacement and Minimum Weight Stock Cars—The numbering of the divisions in this class has been reversed, division 1B being made the smallest piston displacement, 160 cubic inches and under, and a sixth division has been added for the

The Contest Regulations for 1910

larger cars. It should also be noted that in this piston displacement class it is intended that cars should compete at their normal minimum chassis weights, the adding or attaching of any dead weight to the car as ballast to enable it to compete in any other division than that to which its normal chassis weights entitle it, being prohibited.

To meet this prohibition against ballast, the minimum chassis weights have been reduced 100 pounds in each of the six divisions.

Class B—Open to any chassis of a gasoline car which is in accordance with the definition of a stock chassis; to be governed by the following table of piston displacement and minimum chassis weights:

| Division | Piston Displacement in cubic inches | Minimum Weight in pounds |
|----------|--|--------------------------------|
| 1B..... | 160 and under..... | 1,100 |
| 2B..... | 161 to 230..... | 1,400 |
| 3B..... | 231 to 300..... | 1,700 |
| 4B..... | 301 to 450..... | 2,000 |
| 5B..... | 451 to 600..... | 2,300 |
| 6B..... | 601 to 750..... | 2,500 |

No car shall compete in any class above that to which its weight entitles it.

No dead weight of any description shall be added to a car or attached thereto in any manner as ballast.

Class C. Piston Displacement Without Minimum Weight Restrictions or Stock Car Qualification—This class has been added to afford an opportunity for competition between motors of approximately equal size, six divisions being provided according to piston displacement but without stock car qualification or minimum weight restrictions.

This class might be considered the experimental or development class.

Class C—Open to any gasoline car or chassis made by a factory which has during the 12 months prior to the date of contest produced at least fifty motor cars, not necessarily of the same model. Eligible for entry under the piston displacement limitations of class B, but without minimum weight restrictions.

| Division | Piston Displacement in cubic inches |
|----------|--|
| 1C..... | 160 and under |
| 2C..... | 161 to 230 |
| 3C..... | 231 to 300 |
| 4C..... | 301 to 450 |
| 5C..... | 451 to 600 |
| 6C..... | 601 to 750 |

No car shall compete in any class above that to which its piston displacement entitles it.

The other classes are amended as follows:

Class D—Open to any gasoline car which complies with the definition of a motor car without restriction as to piston displacement, weight, price or quantity produced. There may not be more than two events under class D upon a day's program without special permission of the contest board.

Class E—Special events other than those above specified held in connection with any motor car meet or contest, and approved by the contest board, of which there may not be more than three upon a day's program without special permission of the contest board.

Class F—Open to gasoline stock cars of the high-wheeled, solid-tired buggy type, diameter of wheels 36 inches or over. Entries subject to price limitations of class A. There may not be more than two events under class F upon a day's program without special permission of the contest board.

Class G—Open to electric stock cars only. Subject to the price limitations of class A.

Class H—Open to commercial cars, cabs and trucks. Division limitations to be obtained from the contest board.

8—Match Races—Matches may be held as contests of any kind covered by any of these rules and may be run under any of the classes or divisions.

GENERAL AND SPECIAL RULES

The contest rules have been rearranged and classified into: (a) General rules applicable to all contests, and (b) special rules for each of the various forms of contests as follows: Special rules for road races. Special rules for track races. Special rules for long distance track and 24-hour track races. Special rules for hill-climbs. Special rules for reliability contests and tours.

GENERAL RULES

First—Provisions have been made for the appointment by the contest board of the

referee for every contest, from a selected list of men of undoubted standing, familiarity with and ability to administer the contest rules, located in every locality where contests will be held and known to the promoting clubs and associations in those localities.

Second—To the further end of establishing and maintaining the strict compliance of all entrants with the stock car requirements of the rules, a technical committee is provided, of which the associate member of the A. A. A. technical committee in the district where the contest is held, shall be chairman, together with such other technical members as the promoter may appoint, to technically inspect all cars offered for competition and to prevent the entrance of other than bona fide stock cars.

Third—The third element to complete the organization of the contest board is found in the official representative of the board previously provided for, who will be in attendance at every contest to co-operate with the referee and the technical committee in the strict enforcement of all the contest board rules.

Entries—The promoter is prohibited, under pain of disqualification, from advertising the proposed competition of any entrant in a contest until his entry has been actually made. The promoter is also required to secure a signed entry blank and entry fee from a proposed entrant, in order to bring such entrant within the jurisdiction of the contest board's discipline in case of his failure to appear.

Supplementary Regulations—In order that the governmental functions and supervision of the contest board may extend to every form of contest, a promoter desiring to make regulations for some particular form of contest, not included in the published rules of the contest board, may do so upon submitting such supplementary regulations to and receiving the approval of the contest board.

Certified Trials—To put the stamp of authenticity upon any special form of road trial or test of an individual motor car or accessory, the maker, owner, agent or dealer may secure from the contest board an official sanction for such trial, which will be carried on under the supervision of a representative of the contest board under the general rules and the special rules of the board in such case provided.

Advertising—To prevent the holding of contests which could not, in any way, redound to the benefit of the sport and industry, the following rule has been adopted:

"Any owner, manufacturer, dealer, agent or driver taking part in or directly connected with any contest otherwise than under these rules, and obtaining extensive advertising therefrom, shall be deemed to be guilty of a breach of these rules."

Records—To prevent the indiscriminate advertising and improper comparison or performances or alleged records, all claims for records must be made to the contest board within 10 days of their accomplishment and no record shall be advertised until accepted and allowed by the contest board. The board may reject any claim which in its opinion would not promote the best interests of the sport.

No claim for a record at a distance under one mile and up to 5 miles will be allowed unless taken with a recording automatic timing device and the actual recorded evidence submitted.

Provision is made for a register of records to be kept by the contest board.

Racing Drivers' Register—All racing drivers are required to register with the contest board and receive a registration card, such registration expiring on December 31 of each year. A detailed record of each driver's participation in contests throughout the year will be kept. Drivers are required to exhibit their registration cards to the referee on demand at any meeting.

An unregistered driver may not compete in any sanctioned event.

Amateur Definition—The definition of an



amateur is amended by adding an additional restriction so that "no one who is actively engaged in the motor car or accessory industry" may compete as an amateur.

Amateur Drivers' Register—For the protection of the amateur driver and to afford bona fide amateur competition, an amateur drivers' register has been established, requiring annual registration with the issuance of a registration card by the contest board.

An unregistered amateur may not compete in any sanctioned event.

Amateur Entries—An amateur shall neither enter for nor drive in any contest a car which is the property of any person or corporation actively engaged in the motor car or accessory industry.

Powers of Referee—For the safety of all concerned, the referee's powers have been broadened, as follows:

He shall prohibit any driver or mechanic from entering or continuing in any contest who, in his opinion, is physically unfit.

He shall have the right to stop a race before its scheduled termination if emergency demand such action, and in such a case no award shall be made.

He may order the postponement of an event for any reason which, in his judgment, after consultation with the promoter and representative of the contest board, may be valid.

At his request, a driver or mechanic must furnish a physician's certificate as to his physical and optical fitness to enter a race, or may be required to submit to a test to determine such fitness.

The following provision has also been added to the duties of the referee:

"The referee may disqualify any driver, mechanic, entrant or entrant's representative who shows discourtesy toward any official."

Delivery of Prizes—In the event of a protest, or an appeal to the contest board from the decision of the referee, no prizes shall be delivered until an official decision is rendered.

Promoter's Liability—Promoters are required to use every precaution in the proper preparation of the track or course and the proper safeguarding of same during practice or the running of a contest, and shall be held responsible for any accidents resulting from their negligence in these matters.

Unadulterated Fuel Supply—Stringent regulations are provided for the testing of contestant's gasoline and to insure the use of a standard and unadulterated fuel supply. Disqualification of the owner, entrant, driver and car, or any or all of them, is the penalty for violation.

Special Rules For Road Races

The protection of the public and of the contestants being the paramount consideration in the running of a road race, the following rules have been adopted:

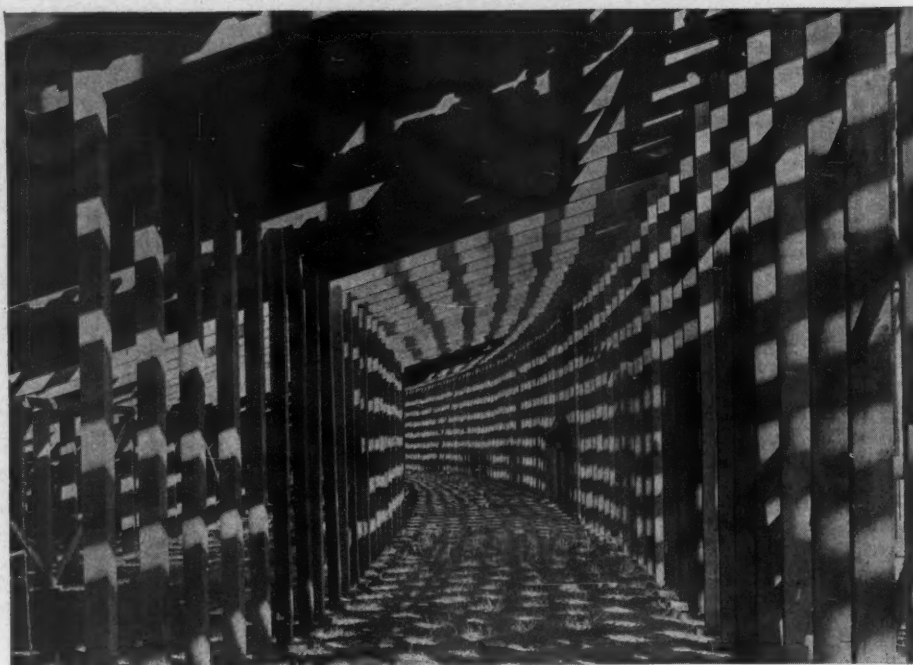
Permits to Use Road—Before official sanction will be granted for a road race, hill-climb or speed trial, or any other competition on the public highway, a promoter shall first obtain the properly authorized permission of any and all local authorities for the use of such highway and shall file the original or a certified copy of such permission with the contest board.

Safeguarding Public and Contestants—A promoter must also furnish evidence satisfactory of the contest board that he has taken every possible precaution to safeguard the general public and the contestants, including the proper preparation of the roadway, and especially for the prevention of dust, the policing of the course, closing of highways and erecting fences where needed, and shall file with the contest board the original or a certified copy of any and all contracts and agreements made or entered into by him for the accomplishment of such safeguards.

Repairs and Adjustments—All mechanical



Los Angeles' New Mile Board Track



HOW THE NEW BOARD TRACK AT LOS ANGELES LOOKS UNDERNEATH

repairs and adjustments must be made exclusively by the crew of a car.

Repair Pits and Attendants—There shall be located at the start and finish line one repair pit for each car started, not less than 15 feet long and 8 feet wide. Each contestant shall be entitled to have three attendants, two of whom shall be permitted to make replacement of gasoline, oil and water and replacement or replenishment of tires, or crank the motor, when contestant's car is at a standstill at its pit, but said attendants shall in no case make any mechanical repairs or adjustments to the car or assist in any manner in such repairs and adjustments.

Spare parts, tools, etc., may be laid on the shelf or ledge in front of the pit, and pit attendants, while in the pit, but not otherwise, may hand same to the driver or mechanic.

A violation of this rule shall disqualify the car.

Fraud—Any attempt at fraud in the evasion of the definition of stock car and stock chassis and status of the car, on the part of an entrant, shall disqualify the car, the driver and the entrant.

In addition to the foregoing, there is provided a complete set of rules for the running of a road race, including weighing in and weighing out requirements; signal code for contestants; international road symbols for marking the course; road regulations; special duties of officials, etc.

Special Rules For Track Races

Tracks are divided into three classes, viz.: One-half mile, 1 mile, 2 miles or over, specially constructed speedways.

Tracks Must Be Licensed—Tracks will be inspected by a representative of the contest board and if arrangement of fences, buildings, ditches, provisions for laying the dust and other safeguards meet the requirements of the contest board, they will be licensed, such licenses expiring on December 31 of each year.

Licenses will not be issued to tracks which from the nature of their surfaces or turns, whether on account of dust, roughness, fencing or otherwise, may be considered dangerous.

Track Meeting Limited to 3 Days—No sanction will be granted for a track contest of more than 3 days' duration.

One-Half Mile Track—No record will be allowed which is made on a track less than 1 mile in length.

Driving Reverse Way of Track—Any contestant who drives the reverse way of a track shall be immediately disqualified, suspended and reported to the contest

board. The referee has no alternative in this regard.

Long-Distance Race Rules

Change of Drivers—No driver shall be permitted to drive or have charge of a car for more than 3 consecutive hours. After the expiration of such 3-hour period he shall not be again permitted to drive until he has taken at least 1 hour's rest.

No 24-hour race shall be permitted on a ½-mile track.

Repairs and Replacements—Repairs and replacements are restricted to the part or parts actually damaged. No complete assembled unit, such as rear construction, transmission gear case, motor, clutch, etc., can be totally replaced unless damaged in all of its parts. When one or more parts of an assembled unit are damaged, such damaged parts only may be replaced.

Other rules added are:
Adequate code of signals to contestants.
Restriction of repairs and adjustments to a car on the track to those which can be made by the driver and mechanic and only such as will enable the car to run to the pit or paddock.

In case of total disability on the track, a car may be towed to the pit or paddock by a car approved by the referee.

Technical inspection during a race of any car which may be considered unsafe.

Stopping and restarting of race not to be announced in advance.

No work to be allowed on a car during any intermission.

Special Rules For Hill-Climbs

Provisions previously cited relative to permits to use the public roads and evidence of safeguarding public and contestants must be complied with before sanction will be issued.

Length and Grade—The promoter must file with the contest board 10 days before the running of any hill climbing contest a surveyor's certificate of the length of the hill to be climbed and a profile showing the greatest percentage of grade at any point and the average grade for the total distance. These figures must also be stated in the entry blank.

Except for the above, with a few minor amendments, the hill-climb rules for 1909 are unchanged.

Reliability Contests and Tours

A summary of these rules for 1910 will be issued shortly.

The complete contest rules for 1910 are now being printed and will be issued as soon as completed.

Lowell Quits Road Racing Game



VIEW SHOWING PROGRESS OF LOS ANGELES' BOARD TRACK

LOWELL, Mass., Feb. 19—There will be no motor racing at Lowell this year. That was decided upon at a meeting held by the club Tuesday night. The matter was thoroughly thrashed out and the figures for the last meet were made public for the first time. The total receipts for the week's carnival was \$68,456.78. This included the \$10,000 guarantee fund. The receipts at the gate were \$25,405.10. The expenditures were \$66,877.78, leaving a balance of \$1,579, of which \$1,083 was in the bank and the remainder is yet to be collected.

The items of expense were divided as follows: Construction, \$29,953.82; administration and salaries, \$6,805.23; operation, including cost of trophies, etc., \$30,118.73. After the report was read President Heinze made a statement that many people believed that 150,000 people were at the races, when but about half that number were on the course. He added that only a portion of the guarantee fund could be returned, due to the fact that unusual expenditures had cropped up not estimated in preparing for the carnival. It was then voted to assess the members \$50 each, the money to be sent to the national association. The question of retaining the present club quarters in the Richardson hotel will be settled at the next meeting.

Now that the report has been finally given out showing that there was a balance on hand after all debts had been paid, motorists hereabouts feel that had the club limited its activity to motor races the balance left over would have been greater. The marathon run cost a lot of money, more than it was worth, and the bicycle events did not bring enough to pay

for running them. So the motor races had to stand for the whole affair. Therefore, it is not fair to motoring that there should be any assumption that the races were not profitable.

TWO WEEKS' SHOW IN GARDEN

New York, Feb. 22—For the first time in America the motor trade will have a 2 weeks' show, as owing to the many additions to the ranks of the Selden patent licensees the Association of Licensed Automobile Manufacturers has planned a double show to be held in Madison Square garden, New York, in 1911. The dates selected are January 7 to 14 for pleasure vehicles, reopening on Tuesday, January 17, and closing on the 24th for commercial vehicles.

To properly care for the exhibitors, arrangements have been made by the show committee of the A. L. A. M. to rebuild the interior of the garden, thereby securing 20,000 square feet more floor space than has been available at previous shows. This will be accomplished by extending the elevated platform so that it will be 50 feet wide, with another platform overhead, extending from the level of the balcony. When this is accomplished and the commercial vehicles are cared for at the second week, the show committee can accommodate eighty exhibitors of vehicles in spaces of the same size as those used at the last show. In other words the new construction will give sufficient room to care for all the present Selden patent licensees. There also will be accommodations for twenty-seven exhibitors of motor cycles and about 300 motor and accessory manufacturers.

Work will begin early in July on the preparation of the interior construction, which will be made in sections to permit rapid installation. When the pleasure vehicle

show closes on Saturday night, the pleasure vehicles will be removed and their places taken by commercial cars. The signs and carpets also will be changed, but the main decorations will be carried through both exhibitions. The contract with the Madison Square Garden Co. was signed by President Clifton of the A. L. A. M. before he left on his southern trip.

As for Chicago, it is stated that the Windy City affair is scheduled to open 14 days after the second week in New York, which would practically give it the same span of time it had this year. There are rumors also about Chicago that Alfred Reeves may have a finger in the pie and that the A. L. A. M. will manage the show in place of the N. A. A. M. This same gossip also says that S. A. Miles will not be overlooked and that the managers of the show will be Reeves and Miles, the same as it was in Atlanta. It may be too, said this gossip, that the Chicago show will not be held in the Coliseum and First Regiment armory, despite the fact that Miles says he has those two buildings for the 1911 show. It was proven at Chicago early this month that something has to be done to care for the many who wish to exhibit their wares at the national show. There were forty or more manufacturers of cars who held outside shows during the N. A. A. M. event, and it is felt that the 1911 exhibition will have to be held in a building which can care for nearly everyone in the trade. Therefore, it is hinted that the big pavilion at the stock yards, in which the annual fat stock show was held, will be secured for a motor car display. All this, however, is mere gossip, lacking confirmation from headquarters at the present time.

BOSTON ADOPTS NEW SCHEME

Boston, Mass., Feb. 19—The decorative scheme for the Boston show has been announced. The big building is to be transformed so as to resemble the country in spring. Lilacs and apple blossoms will make a purple and white combination in Grand hall. Tulips and creeping vines also will be utilized, the latter to bring out a soft green shade. There will be no posts between the space in this hall, flowers taking their place. In Machinery hall all the posts will be covered with bark and a whole apple orchard will be brought to Boston and transplanted in the building to give a realistic effect. The side walls will be paneled off and the effect will be created through clever perspective of an open country stretching far away. The spaces in this hall will be divided with real fence rails, well weathered, and the sign posts and boards will be of the rough pattern found in the country.



All Factories Busy at Detroit

DETROIT, MICH., Feb. 22—Production is now at its height at all the Detroit motor car factories and, while no exact estimate can as yet be made regarding the total of the season's output, the way in which the leading manufacturers are coming up to their announced schedules is convincing the most skeptical that there is certainly a chance that the supposedly inflated figures given out in the December estimates will be closely approached, if not actually realized. The parts makers have been doing their duty by the manufacturers in style that has surprised the pessimistic. No famine has as yet developed in any department and, although orders are occasionally delayed a bit, the deliveries at the factories are proceeding generally according to the plans of the makers. The labor supply has been strained at several stages of the season, but a steady stream of machinists and metal workers has been sifting into the city and no marked shortage has as yet developed in any line.

The E-M-F and the Ford are at present leading in numerical production, the former having set a record for the week ending February 19 by completing and shipping sixty-five cars. Deliveries have also started on the Flanders, which is made at the Clark avenue plant of the company. The first week saw an aggregate of fifty cars rolled onto the shipping platform, but this will be doubled before the present week is out, according to the prediction of the management. The Cadillac is pushing production to the limit and is right up with its schedule and the Brush which has recently occupied its new factory out in Hamtramck will soon take up the production of runabouts at an increased rate of speed over that possible at the downtown plant, which will in the future be largely devoted to the making of radiators and other parts.

The returns from the early deliveries have encouraged the makers in their original belief that 1910 is to prove the industry's banner year. It is now obvious that, barring some unexpected and radical change in the financial world, all the cars built in Detroit this season have an anxious market awaiting them. Those factories which make definite allotments at the opening of the year are in receipt of letters from scores of their distributors, begging that the allotments be increased. In most cases this will be impossible, although the months of June and July will tell the tale. Several of the local manufacturers are planning to relieve their most anxious distributors at this time, hoping that the regular run will be over in time to permit the use of several weeks on the supplementary orders, before the switch is made to the manufacture of the 1911 models.

Construction work of a permanent char-

acter is in progress at most of the factories and virtually all of them are using temporary sheds in the storage of supplies and parts. The Cadillac is so cramped for quarters that the body-finishing department has been moved several blocks to the Detroit riding academy, which has been transformed into a finishing plant. Some construction work already is in progress on the site of the firm's new factory and several of the car barns which occupy the property recently purchased, adjacent to the plant, are in use, pending the time when they can be replaced with the factory's new buildings.

The Chalmers broke ground Monday for a new building, 150 by 50 feet, of one-story construction, to be used for the block-testing of motors and the heat-treating of steels. The building will be of cement and steel exclusively, not one bit of inflammable material being employed in its construction.

The new factory of the Hudson, located almost directly across Jefferson avenue from the Chalmers, is progressing rapidly, the walls being already up. The Watt Motor Car Co., which has been occupying temporary quarters on Porter street on the west side, has purchased a plot of property in Hamtramck and plans to have a factory built in the early spring to enable it to complete its manufacturing schedule, which calls for 600 of the 1910 models. The Van Dyke has bought the Lowrie Lumber Co. property at Junction and Leavitt and has broken ground for a factory. The Owen Motor Car Co. is now installed in its factory on East boulevard, near the Packard plant, and is hard at it, working on the 500 high-power cars which will be manufactured this year.

The weekly recruit in the manufacturing field is the T. H. T. Motor Co., which, capitalized at \$100,000, plans to manufacture a four-cylinder touring car on designs of a sample which is listed as one of the assets of the company. Announcements of factory space and operating staff are expected shortly.

MAY BE TWO PARIS SHOWS

Paris, Feb. 8—The chances are that Paris will have two motor car shows at the end of this year. This seems evident from the official announcement made today by the *Chambre Syndicale de l'Automobile et des Industries qui s'y rattachent*, in other words the motor car and side industries syndicate. This is the old big trade association and has no connection with the recently organized manufacturers' association. The old syndicate, made up of thirty-seven concerns, met yesterday and decided to make the following suggestions to the Consortium des Expositions, the Automobile Club de France and the other trade associations which have thus far been associated with it in

the promotion of the annual Paris shows:

1—That all stands be uniform in make, decoration, etc.; that the show promoters take care of the decoration, installation and lighting of the stands.

2—That the stands or show spaces be allotted by drawing, which means the doing away of the stands of honor which in recent years have been the best located places and held by the old concerns.

3—That the total profits from the show be divided among the exhibitors belonging to the syndicates or associations included in the Consortium.

4—That the dealers and body makers hereafter will not make up special classes.

The old syndicate will promote its or the club's twelfth annual Paris salon next December. As the *Syndicat des Constructeurs d'Automobiles*—the new organization—already has positively announced that it will promote a show in October and November next, two Paris shows will be held unless a compromise is reached, which at present seems very problematical, especially so as already the lie is being passed from one side to the other as to the causes of the trouble. One association charges the other of wanting to get the whole of the profits. There can be no doubt that the money end has a good deal to do with the whole situation.

CAR BEATS ICE BOAT

Detroit, Mich., Feb. 22—The ice boat no longer is the monarch of the frozen surface of Lake St. Clair. The vaunted speed of the whitewinged flyers that have stood for many years locally as the personification of rapid locomotion has been forced to a secondary position and the motor car now reigns champion, not only of the ground but also of the congealed surface of the body of water which boasts more ice yachts than any other in the world.

In a race in which both motor car and ice boat had every opportunity to do their best, the motor car won. Its margin was small but the ice yacht was beaten and the time made showed that the result was no fluke. The race was the result of a challenge by Matt Kramer, one of the leading veterans of the yachting game, and was made on behalf of the lake's champion boat Challenger. It was accepted by several of the local manufacturers and Saturday was set for the race. A large party of motorists and yachtsmen assembled, in the neighborhood of a score of testers from the local factories appearing with cars. When the time came for the race, however, the others left it to Frank Kulick, of the Ford, and Frank was the man to whom the ice yacht had to lower its colors.

A brisk wind was blowing and only a light cushion of snow covered the ice which was more than 2 feet thick. The course was arranged to give the ice yacht a beam wind in both directions. The race was started without advantage to either contestant, Kulick riding alone, while the yacht carried

a crew of three, with one man perched on the windward runner.

At the start Kulick led but was overtaken by the ice yacht before the turn was reached, $1\frac{1}{4}$ mile from the starting flag. The yacht went about in a cloud of snow but Kulick eclipsed this performance in spectacular turns by whirling around the flag like a top, performing at least three complete revolutions before squaring away on the return trip. When the Ford's nose was finally pointed for the home mark, however, the car simply flew, covering the mile and a quarter in :59% and passing the ice yacht before half the distance had been covered. Kulick was forced to slow down for the finish, however, and was nearly nipped by the ice yacht which came in a terrific burst of speed.

Not in the memory of the oldest inhabitant has the surface of the lake been covered with as thick a sheet of ice as has prevailed this winter and motorists have enjoyed unusual facilities for the unique sport. On the day of the race a number of pleasure parties crossed L'Anse Creuse Bay to Lakeside Inn, Mt. Clemens, a distance of 8 miles. On the same day Russell A. Alger, of the Packard company, traveled from the Country Club to the Old Club at the St. Clair flats, with a party in his big touring car, making the trip along the channel covered by the lake freighters in the summer time.

SHOWING GOOD ROADS ACTIVITY

Philadelphia, Pa., Feb. 21—The good roads committee of the Automobile Club of Philadelphia is setting an example of year-round activity which should act as an incentive to similar bodies, not alone in this city, but all over the country. Several months ago it raised sufficient money to lay down a stretch of good road on the route to the Delaware water gap, which not alone did away with a wallow or a dust bath, according to the weather, but which saves each motorist traveling that way the tidy sum of 33 cents per trip. Later it became interested in the improvement of the bad 10-mile stretch of the Lancaster pike between Coatesville and the gap. The chairman of the club's touring and signboard committee, W. O. Griffith, was present at a meeting at Coatesville last Friday, when the Inter-County Good Roads Association, whose main object in life will be the work mentioned, was formed. The club has already gathered \$500 to help along this work and the Automobile Club of Delaware County has pledged itself to contribute \$200 to the fund, while Dr. Donald McCaskey came to the meeting armed with a pledge from the Lancaster Automobile Club to devote the sum of \$2,000 to the cause.

The committee has been doing a little quiet work on the Philadelphia-Baltimore route, near Perryville, which when completed will enable motorists to follow the direct route to the Maryland metropolis, and do away with the long detour via Lancaster.

Coast Holds a Motor Mud-Plug

SAN FRANCISCO, Feb. 13—The annual mud-plug of the Automobile Dealers' Association of Northern California was held today, resulting in perfect scores for eleven of the fifteen cars entered. The successful machines were the Buick 40 and the Buick White Streak, Corbin, Hupmobile, Studebaker-Garford, Auburn, Autocar, Velie, Ford, Paterson and Crawford. The Haynes car was penalized for entering the control in Oakland $21\frac{1}{2}$ minutes ahead of time. The Brush runabout was penalized for being late at both the Oakland and San Francisco controls. Neither of the Chase motor wagons finished.

The course of the mud-plug was the 200 miles around San Francisco bay from San Francisco to Oakland by way of San Jose, and from Oakland back to San Francisco again. For the 200 miles the cars had 10 hours with an hour's stop in Oakland for luncheon. Plenty of rain had fallen in the early part of the week, but unfortunately as the date of the mud-plug approached the sun persisted in shining in its most genial manner. As a consequence the roads lost most of their mud, and when the contestants checked in at the end of their journey they were covered with dust rather than bespattered with mud. There was enough of strenuousness in the 200-mile trip, however, to make it a good contest, and the motor car men are not dissatisfied with it as a demonstration of the perfection to which most of the motor cars of the present day have been brought. There were many of them who expected a goodly number of perfect scores, but they were not prepared for practically a clean slate all around.

The roads leading out of San Francisco for 20 miles south to San Mateo were found, as usual, in wretched shape, and here was required plenty of care to avoid broken springs or other mishap. Outside of San Jose there was another stretch of bad roads. It was thought that the average speed of 20 miles an hour that was required of the cars would tax many of them, but this proved not to be the case. Some of them made the 200 miles in less than 8 hours and all of them had plenty of time to spare before the final checking in. This applied not alone to the bigger cars, but also to the little ones. The Studebaker-Garford, the largest car in the contest, did not have any apparent advantage over the little Hupmobile, for the latter made the round trip in time that is claimed as the fastest of the day.

The mud-plug, the first contest of the year, was interesting in that it saw the first appearance of several new cars in local contests. It was the first time that the Corbin, which has been making many records in southern California, has been seen up here. Likewise it was the debut for the little Hupmobile, which is now in

the field here in earnest for the first time. The Ford has long been represented out here, but it has not been taking part in public contests. The Paterson and the Brush likewise are new ones in the contest line. The Haynes has been out here before, but it has never been put into contests of any kind. The Crawford has just been brought to this city within the past week and it signalized its advent by making a perfect score. The Chase motor wagons have been brought out here by William H. Durphy, formerly sales manager of the Chase Motor Vehicle Co., of Syracuse, N. Y. Their maximum speed is hardly 20 miles an hour and Durphy did not expect to make the course with these. On one of the cars, however, to demonstrate its simplicity and its adaptability to handling by any driver that a merchant might put upon it, Durphy placed at the wheel a lad who, it is stated, had had no more than 15 minutes instruction in the theory of the machine. Durphy in a survey type of wagon, with high wheels and hard rubber tires, made the trip from San Francisco to Oakland—102 miles and a fraction, according to his speedometer—in 6 hours 12 minutes running time.

BADGERS PLAN STATE TOUR

Milwaukee, Wis., Feb. 21—A general meeting of the Wisconsin State Automobile Association will be held Thursday. The important committees already have been called together for sessions during the 6 days of the motor show in the Auditorium, and these conferences have aroused so much interest that President Moore felt justified in calling a general convention. It is reported that offers will be formally made to the association at this meeting of several large contributions toward a fund of \$500 or \$1,000 for the purchase of a trophy, which is to be competed for in the proposed state tours annually. President Moore's plans for the first annual state tour have progressed so well that a definite proposition will be made to the association. The tour probably will start at the public library, Milwaukee, thence to Whitewater, and along the north shore of Lake Geneva to Beloit, where the first night control will be established. The second day's run is from Beloit through Janesville, Monroe, to Madison, for overnight stop. Madison to LaCrosse is planned as the third day's run; LaCrosse to Eau Claire and Chippewa Falls on the fourth day; thence to Marshfield, Wassau, Merrill on the fifth day; to Appleton on the sixth, and from Appleton to Green Bay, Manitowoc, Sheboygan to Milwaukee as the finish. The tour is to be open to private owners as well as dealers and manufacturers, and it is planned to use the profit to be derived exclusively for measuring roads.



The Readers' Clearing House



VENTURI-TUBE CARBURETER

CHICAGO—Editor Motor Age—In Motor Age, Grand Central Palace Show issue, under the caption Carbureter Construction, was used the word venturi, which I am unable to find in any of my references, including the Standard dictionary. I would very much appreciate a definition of the word.—Charles Fisher.

When any fluid, liquid or gaseous, passes through a pipe of variable cross section or size, the quantity passing any given section in a given time is the same; such being the case, the velocity of the fluid in the various sections is inversely proportional to the areas of the sections. Hence it is evident, from the foregoing facts, that the pressure is greatest at the largest section and least at the smallest. This is known as the venturi principle, and has been utilized in the design of some makes of carbureters with good results. In applying this principle to the carbureter design, the mixing chamber is shaped like two hollow truncated cones with their small ends brought together, or in other words, like the familiar hour glass. By locating the spray nozzle at the point of least cross section the conditions are favorable for securing that marked economy of fuel which results from the use of high air velocities under low pressure. The greater the pressure drop at the nozzle, accompanied by a proportional increase in the air velocity, the better will be the fuel division and vaporization. The very rapid agitation and internal motion of the mixture column, due to the restricted section of the venturi tube, tends to produce a homogeneous fuel charge. A lowering of the pressure lowers the temperature of the liquid through vaporization, hence, in venturi carbureters, where any marked venturi effect is sought, jacketing is advisable. The advantages of the venturi tube as applied to carbureters may be summed up as follows: Homogeneity of mixture; ease with which the mixing chamber may be jacketed, either by air or water; and the mixing chamber may be placed in any plane, thus adapting it to varied motor designs.

SELDEN LICENSES

Greenville, Ill.—Editor Motor Age—Through the Readers' Clearing House will Motor age answer the following:

- 1—Where can I buy a tester for testing gasoline?
- 2—What is the Selden patent?
- 3—What factories are building cars not under the Selden patent?
- 4—Where can I advertise for sale a patent on a valve stem which lengthens the life of the valve to almost that of the car?

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

NOTICE

Motor Age has received communications addressed to the Readers' Clearing House from the following named towns and nom de plumes:

Vienna, O.—A Subscriber.

Cincinnati, O.—Thankful Subscriber.

Vancouver, B. C.—An Interested Reader.

These communications will be held until the proper signatures have been received. All communications written over a nom de plume must bear the writer's signature, otherwise such communications will not be answered. These signatures are wanted as proof of the authenticity of the inquiries.—Editor Motor Age.

5—What carbureter gives the best services on a model N Ford engine—the Kingston ball float, Schebler or Stromberg?

6—What is the proper method of setting piston rings when four are used on one piston? Will they remain in place any length of time? 7—Will cylinders lose power if the rings are placed in a row on one side of the piston?—M. Williams.

1—The little glass instrument known as a hydrometer which is used for testing the specific gravity of gasoline may be obtained from any of the large dealers in motor car supplies.

2—The Selden patent, as it stands today, covers all forms of motor vehicles using a compression type engine, a liquid fuel tank and a disconnecting device or clutch, provided the engine turns faster than the propelled wheels. It was applied for in 1879 and issued in 1895.

3—In the February 10 issue of Motor Age, at the bottom of page 13, a complete list of the cars licensed under the Selden patent is given; all manufacturers building cars, not included in this list, are not manufactured under the Selden patent.

4—You may advertise any patent for sale in the classified advertising columns of any trade journal.

5—Motor Age would suggest your writing Ford branches for this information.

6—When there are four rings on a piston their slots should occupy the four points at distances of 90 degrees on the circumference of the piston, near which position they remain indefinitely in the

majority of cases. The cylinders most likely will lose power if the slots are placed in a row.

SLIDE-VALVE INFORMATION

Rockdale, Tex.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, answer the following questions?

1—Where is the Silent Knight engine made and is it a sliding valve four-cycle motor?

2—Is it made in a six-cylinder type?

3—Is there a car made employing this motor, and if not what American car uses this motor in the six-cylinder form?

4—Was not an illustration of this engine valve recently shown in an issue of Motor Age?—P. H. Perry.

1—The Silent Knight motor is manufactured in America by Knight & Kilbourne, Chicago.

2—It is a sliding-valve four-cycle motor. The valve consists of two reciprocating sleeves located between the piston and the cylinder wall, these sleeves or valves being reciprocated by an eccentric shaft driven by chain from the crankshaft?

3—This motor is not manufactured in six-cylinder types in America, but there are several six-cylinder English Daimler cars in which this motor is used.

4—Knight & Kilbourne have made a great many cars with this motor in it. There are no other American concerns using this motor at the present time, although it has been currently reported of late, in fact in last week's Motor Age, that certain American makers are arranging for its use.

5—Several illustrations of this motor were used in a communication in a very recent issue of Motor Age.

INTAKE VALVES IN HEAD

Madison, Me.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following questions?

1—Why do so many of the motor car makers place the inlet valve in the head of the motor instead of at the side?

2—Are they more noisy than valves in the side?

3—In a four-cylinder engine, with cylinder sizes 4 by 4½ inches, rated at 25.6 horsepower A. L. A. M., will I get any more horsepower with the inlet valve in the head? If so, how much more?—A. E. M.

1—The reason for placing the intake valve in the head is that a larger valve can be used than where it is located in an offset chamber at the side of the cylinder. Where the intake and exhaust valves are located at one side, as in an L-type of motor, it is not possible to have the valves so large as where the intake alone is placed in the head. Placing the intake in the

head allows of a smaller offset for the exhaust valve and so the amount of wall in the combustion chamber is reduced, so that the efficiency is increased.

2—The valve-in-the-head would be somewhat noisier than the side valve in view of the fact that there are more opportunities for noise between the end of the rocker arm and the top of the valve, as well as between the tappet rods at the side. The intensity of the noise is increased by having it occur near the top of the bonnet or hood.

3—You should get more horsepower from a motor with the valves in the head as suggested, because the flame-swept area in the combustion chamber is reduced, and the amount of heat radiated into the water-jackets is reduced. This heat is converted into energy instead of being carried off by the cooling water. It would be impossible to estimate with any degree of certainty the additional power or efficiency of this design.

WIRING THREE-BELL SYSTEM

Milton, N. D.—Editor Motor Age—Will Motor Age please tell me how to wire a three-bell system in which there are three separate buttons or switches? I desire to use the same batteries and ring either of the bells alone.—A Reader.

Wire the circuit according to the diagram in Fig. 2. Run a wire from one terminal of the battery, or set of batteries, to one of the terminals of each of the bells; run another wire from the other terminal of the battery to one of the terminals of each of the switches or buttons; then connect up wires between the other terminals of the bells with the other terminals of their respective switches.

FORD REAR AXLE WASHER

Kenton, Okla.—Editor Motor Age—1—Will Motor Age through the Readers' Clearing House advise me what is the cause of the non-fluid oil in the differential of my model T Ford wasting at the brake band on one rear wheel. It causes oil on my tire and a dirty looking appearance.

2—Where is the Stapley and Aerocles pump manufactured?

3—Where is the Oakland car manufactured, number to be put out this year and price of same?

4—Would it be satisfactory to an owner of a car to use a vulcanizer successfully, one costing less than \$25?

5—What make is considered best; would a steam one be best?—J. Allen Wikoff.

1—The leakage of oil into your rear wheels and brakes is caused by the packing in your axle giving way. Undoubtedly your trouble is due to packing the case of the differential full of non-fluid oil, owing to which condition it is bound to work out. You do not need any more grease in the differential than will fill the housing to the level of the axle. The escape of lubricant is prevented by a felt washer located outside of the bearing at the wheel and you had better insert a new washer.

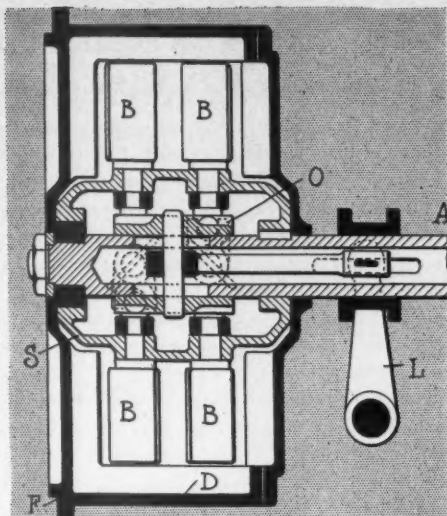


FIG. 1—TORBINIA HYDRAULIC CLUTCH

2—Stapley and Aerocles pumps are manufactured by Bridgeport Brass Co.

3—The Oakland car is manufactured by the Oakland Motor Car Co., of Pontiac, Mich. Motor Age cannot state definitely the number that will be put out this year.

4—It would be entirely satisfactory to use a vulcanizer on casings and inner tubes at the price you suggest.

5—As to whether you use steam or electric would depend largely on your location. The electric is naturally the more convenient price.

THE HYDRAULIC TRANSMISSION

Buffalo, N. Y.—Editor Motor Age—Through the Readers' Clearing House will Motor Age describe and illustrate the hydraulic transmission used in the Torbinia car made in France, and which, I think, was exhibited at the Crystal Palace show?—J. G. Willet.

The Torbinia hydraulic clutch, as shown on the 18-horsepower Torbinia chassis in the English show, works on the principle of fluid resistance which has been applied as used in the Froude hydraulic brake, but differs from the latter in that the revolving drum is provided with feathering blades to vary the resistance instead of fixed blades, the resistance in the Froude brake being regulated by the weight of fluid used. The action of the new hydraulic clutch may be ascertained from the diagrammatic section, Fig. 1, in which a drum D, provided with internal ribs or vanes, is carried by the motor

shaft or flywheel F; within this drum is arranged a smaller drum S, which is keyed to the driven shaft A. The inner drum is armed with two series of four movable blades B, which can be turned by sliding a block O, along the shaft A, by operating the clutch lever L; the lateral or sliding movement of the block O communicating an oscillatory movement in opposite directions, to the two sets of blades B, by means of a series of slotted lever and pin connections. The weak feature of a clutch of this type is the inability to eliminate slip except by a mechanical locking attachment. Of lesser importance may be mentioned also the inability to put the clutch entirely out of action by feathering the blades.

BARKL'S TIRE INFORMATION

Carthage, S. Dak.—Editor Motor Age—I am glad my communication to this department, printed in the February 10, 1910, issue, has been of so much interest to the readers. I have received no fewer than twenty letters from car users all over the United States commenting on the letter, and asking other information. I cannot use the names of either the tire that was good or the tire that proved bad in this letter, or would I feel it was right to do so. But I want to tell your readers a few things that I know will be of benefit. I have not been in the tire or the motor car business to speak of, but I have had considerable experience with rubber, and goods made of that material, and while I do not pose as authority, I know a few things about rubber that every user of car tires should know, or he will spend a good many dollars to learn it. First of all, I wish to say that it is surprising how few of the dealers and agents really know what care a tire should have. The exposure of a casing or a tube in a show window to direct rays of the sun for 1 hour will practically ruin that tire. If they are hung up in a dry, warm place they will soon deteriorate. So that in buying any make of tire, the first thing you should know is that the tire is fresh stock, and has had the proper care since it left the factory. Now I realize how impossible it is for the average consumer to know this, for some time even the agent who buys from a jobber gets stock that is practically worthless. I am of the opinion that the tire makers

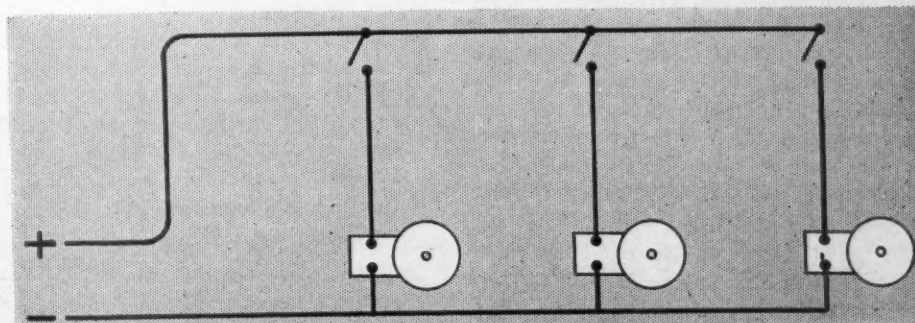


FIG. 2—WIRING DIAGRAM OF THREE-BELL SYSTEM



are right now making a serious mistake—some of them at least—in loading up the jobbers, who in turn load up the dealer, and then the tires have to be kept from 3 to 6 months before they are sold. The average dealer has no proper facilities for taking care of them in the meantime, and the result is that the tire will be dead when it reaches the user. The maker gets the blame, of course. So that the only safe way I have found to buy your tires in such way as to know that they are fresh, have your dealer order them for you direct from the factory, or do so yourself, even if you pay them more than the dealer asks. I am not knocking against dealers, but these are a few facts that I paid for in good hard coin to learn, and I want to give others the benefit of my experience. Try and get a set of fresh tires direct from any reputable factory, and see what a difference you will find in their wearing qualities. By all means do not buy seconds or old stock—they are too expensive at any price. In my travels I often see a dealer's entire stock of casings and tubes in the show window. Don't buy such tires.—Charles E. Barkl.

THE WILDCAT DEALER

Norton, Kan.—Editor Motor Age—I read with a good deal of interest the articles in Motor Age of February 10 from Earl C. Wasson entitled "Protect Legitimate Dealers." I can testify to the statements Mr. Wasson makes about the public buying cars and the lack of protection from the manufacturers. The manufacturer will soon learn that he will have to take steps as a unit to protect the dealer or the business will get a setback from the irresponsible manufacturers or wildcatters, as I term them, that it will take a good while to overcome.

The manufacturer first requires a legitimate dealer to put up his money in advance on cars to protect himself on deliveries. They thus get the use of thousands of dollars without interest. Yet, Bill Smith, who wants to buy a car and whom the legitimate dealer has put up his money to protect him so he may get a car when he wants it, can get the agency for some car, together with the same discounts as the legitimate dealer received, yet Smith is out nothing but his postage. True, he cannot get the same make of car, but one not represented in that particular territory and one equally as good. The dealer is presumably an honest man, and putting up his good time and money trying to do this knows it is a hard proposition to buck successfully.

If I should undertake to go out over the country taking orders for groceries or any commodity the retailers would howl

"kick him out," and such a heavy license would be hung on me that I would have to desist. Yet a business man and one of the same men who raised such a stew over me can and does write to every company that issues a catalog and finally buys something for which he can get the agency and not only gets his own car but cars for his distant relatives and his neighbors, and the public thinks he is conferring a service to humanity by being so foresighted. What is hard to understand is that men in the higher walks of business life, men who surely know that a business man has enough trouble trying to take care of his own particular line of business, will neglect their own business to dabble in motor cars when they do not make a cent out of it and lose their time. A banker would not think of mail-ordering groceries to get them at cost or a groceryman of using his delivery teams of Sundays to haul passengers and buck the liverymen, yet either of them will jump at the chance to get their car at cost and spend some of their time meddling with this business.

I had a customer only yesterday ask me just what I would do for him on a certain model of the car that I handle, and when he found out that I would not cut 15 per cent or any part of it informed me that he had a friend who worked for a certain company and that he could get the agency and his car at cost. And that is not all of it, for he can and will do so.

It will continue to be this way just as long as there is no protection from the manufacturers as a body. Of course, I realize that no one particular manufacturer can accomplish very much, but they could if they took concerted action. I think that the manufacturer realizes the way things are at present and in the near future will take some means as a protection to the dealer. They loose themselves many sales each year by this one cause alone, as this is what keeps the small wildcat companies in existence. I believe that I am safe in saying that 50 per cent of the cars are sold by discounts and not through any real merit of the car alone. If I had a reliable line that I could feel safe in selling and could go out and offer 40 per cent off of list as a retailer, I could sell cars faster than two men with assistants could unload them.

I may be a little radical on this one subject, but I believe that any dealer will corroborate what I have said. I would like to hear from others on this subject. I would also like to see a national organization of the retail dealers that would have for its object protection for themselves. Will some other brother rise to his feet?—L. P. Ellis.

RESPONSIBILITY OF DRIVER

Berlin, Wis.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me whether or not I am responsible for a person being accidentally



injured while riding with me on my invitation, or, technically, would it make any difference if the party had asked for a ride and then was injured?—A Subscriber.

A prominent Chicago attorney in discussing this question holds that it is a question of whether or not the driver of the car is guilty of carelessness which might cause the accident, and to illustrate his point he tells of an accident that recently occurred where a motor car and a trolley collided, the car being jammed against the pillars of the elevated road and almost demolished, fire following the collision. It seems that the owner was not in the car at the time, and that the driver was carrying a couple of the latter's friends. The evidence showed that the driver of the motor car and the motorman were equally negligent, it is claimed, which fact prevented the owner of the car from suing the street car company for damages. On the other hand, however, it was possible for the passengers in the motor car, who were slightly injured, to bring suit against the street car company because of the alleged carelessness of the motorman. The passengers also could have sued the owner of the motor car because of the negligence or carelessness of the driver despite the fact that the owner had not given them permission to ride in the car, or had he told the driver he might take them.

MAKES STEAM CAR PACKING

Eagle Bend, Minn.—Editor Motor Age—Through the Readers' Clearing House will Motor Age please give me the address of Robbel, maker of steam car packing, in your city; and also what to use to resilver mirrors in searchlights, and where solution can be obtained?—F. O. Donnell.

The address of Mr. Robbel, manufacturer of steam car packing, is 3025 Indiana avenue, Chicago.

There are a number of solutions used for resilvering mirrors, but the process of their application is by no means simple and requires the attention of experienced hands if success is to be obtained. If the writer merely wishes to have a few glasses resilvered it is advisable to send them to some manufacturer of lens mirrors, where the resilvering solutions are carefully and properly prepared and the workmen versed in the art. If, however, it is the desire of the writer to experiment Motor Age recommends that a thorough study be made of the formulae given under the head of Resilvering Glass in the Scientific American's or Henley's Twentieth Century Book of Recipes, Formulae and Processes. In either of these articles it is thought that the required information can be obtained.



Legal Lights and Side Lights



CHICAGO WANTS TAX REVISION

CHICAGO is making a desperate effort to revise the wheel tax which has been in existence for the last 2 years, and which is proving to be most harmful to the sport in that the taxation is so unequal. As matters stand now, motor cars are taxed on seating capacity, which works a hardship on the little fellow in that the owner of a \$500 car has to pay as much wheel tax as does the man who drives a 70-horsepower, seven-passenger car, providing the little fellow has a rumble seat and is capable of carrying three passengers. But this is not all. The drivers of horse-drawn vehicles are favored in the taxes in that their rates are not half as much as the motorists'. A single-horse rig pays \$5 per year, a two-horse rig \$10 and a three-horse \$15, while the smallest sum the motorists can get out for is \$12 on a two-passenger machine. Added to the inequality in the rates the motorists are complaining of another clause in the law which allows each city, village or township throughout the state to impose a wheel tax if it so desires. If any number of these did so it would mean the death blow of motoring in the state of Illinois, for there could be no touring unless at great expense, for motorists would have to pay out a small fortune in wheel taxes just to cross the state. The supreme court of Illinois has upheld the validity of the wheel tax, and while the motorists feel that they are right in their contention that such a law is unconstitutional, yet they believe they can obtain some relief by first having the city council of Chicago revise the wheel tax and cut the figures in two and later go down before the state legislature and pass an amendment whereby it will be impossible to impose more than one wheel tax on any one person. The Chicago Motor Club has taken up the cudgel and is preparing to appear before the license committee of the city council, which is to meet Friday afternoon, at which time the club will ask that the rates be revised, taxing on horsepower instead of seating capacity and making the fees \$6, \$8 and \$10 instead of \$12 and \$20, as they now are. They also want to have something to say in the future regarding the expenditure of this money, desiring that the city provide suitable exits in order that tourists may get out of town without having to travel miles over poor pavement. Every day this week mass

meetings have been held at the Chicago Motor Club headquarters in the New Southern hotel which have produced many recruits, so that in all probability a small army of determined owners will swoop down on the aldermen on Friday afternoon.

MODELED AFTER STATE LAW

The common council of Columbus, Wis., has passed an ordinance forbidding the running of motor cars at a speed exceeding 12 miles an hour, with a fine of \$5 and costs for the first offense, \$10 to \$25 and costs for the second offense and \$50 for the third offense. This ordinance is no more severe in its speed limitations than the state law. It was passed to permit municipal authorities to prosecute violations and receive the fines, if any.

NEW VIRGINIA SCHEDULE

Owners in Virginia are much interested in the new motor tax bill that is now being framed in the legislature. The two houses have about agreed on the bill, the provisions of which are as follows: Machines of less than 20 horsepower will pay an annual tax of \$5; those rated between 20 and 45 horsepower will be assessed \$10, while the maximum tax will be \$20 for cars over 45 horsepower.

NEW JERSEY RELENTS

The assembly of the state of New Jersey recently passed a bill that motor cars from other states may be permitted to use the roads of New Jersey for three 5-day periods in a year without the payment of any license fees, and if the senate takes the same view of the motor car license question as did the assembly, visiting motorists soon will be able to enter the high tax. Assemblyman Edge's measure was the first bill to pass the assembly at this session, and although it was strongly opposed by the Democrats, the Republican leader had no difficulty in getting the house to agree to it, the vote being 34 to 19. The bill originally provided for three 10-day periods, but so much opposition had arisen to this that Mr. Edge, when he called the bill up, amended it to make the periods 5-day.

MUST ENFORCE LAW

Ohio's state registrar of motor cars has sent out a circular letter, signed by Carmi A. Thompson, secretary of the state of Ohio, requesting all chiefs of police, mayors and marshals in Ohio cities and villages to enforce the state motor law. "Numerous complaints have been received at this office of cars being operated in this state without displaying thereon 1910 number plates," says the letter. "Any person

owning and operating a motor vehicle upon the public roads or highways of the state during 1910 without displaying on such motor vehicle the new 1910 tag is subject to criminal prosecution. The enforcement of the statute lies in the hands of the local authorities throughout the state, and it is the duty of the local authorities to impartially enforce the provisions of the law. You are respectfully requested to see that the same is enforced."

TWO RULINGS FROM OHIO

Upon request of the Ohio motor car department, Attorney General U. G. Dorman, of Ohio, has rendered two decisions of interest in the motoring world. In his first decision the attorney general held that a motor car, registered by one person and sold to another, has to be registered again, as the law does not provide for the transfer of the license and number plates. He cites a part of the law, which reads: "Every owner of a motor vehicle acquired during any year shall immediately upon acquiring such motor vehicle file an application with the necessary fee for registration." The attorney general holds there are no exceptions to this rule to permit a license to be transferred from the old to a new owner of a car. Likewise the attorney general holds that it is unlawful for a person selling a registered car to transfer the number plates to a new motor vehicle purchased by him. Another question decided was that of the necessity for registering motor vehicles used by various departments of city governments. The attorney general held that all motor vehicles, excepting motor fire engines and ambulances, have to be registered, notwithstanding what the ownership is.

EXCITED DRIVER IS BLAMED

In a recent Louisiana case, Navailles vs. Dielman, 50 Southern (Louisiana) 449, the plaintiff was an old woman who was struck by a car crossing a street. The sound of the horn excited and confused her so that she turned back and was caught under the motor car. In addition the driver was just learning how to handle a machine and from the facts seems to have been excited himself, as he failed to stop his car before striking plaintiff. A verdict for \$3,250 was given plaintiff in the lower court and the judgment on this verdict was affirmed by the supreme court which passed on it.



VARIOUS FACTORS THAT CAUSE TIRE WEAR

M. R. Wells

MANY motorists know from experience that small tires wear more rapidly than larger ones, and that certain makes of cars are harder on tires than others, but why this is the case, they cannot say. In other words, the true action which causes wear is little understood by the majority of drivers or car owners. A few points concerning this action and some of the things that affect it may not be amiss.

The first essential is to understand why there is any resistance offered in the case of a wheel rolling along a smooth road. When a wheel is placed under load its center approaches the surface upon which the wheel rests and the tire flattens out to a certain extent at the point of contact, the amount depending upon the load, construction of the tire, dimensions of tire and pressure with which it is inflated. If the wheel is rolled ahead under this load it will be seen that there is an action tending to squeeze the tire out from in front of the wheel, the same as dough is squeezed out from in front of a rolling pin. On account of the tire being securely fastened to the rim, the fibers under the back portion of the wheel are stretched while those at the bulge just ahead of the point of contact are compressed. These two forces which tend to compel the bulge on the tire to go under the wheel must equal the force tending to squeeze the tire ahead, else the tire would creep around the wheel, as it sometimes does when not securely fastened to the rim. The degree to which this deformation or bulging actually takes place before the two mentioned forces neutralizes depends very largely upon the way in which the thread of fabric of the tire is arranged. If nothing but rubber is used it is evident that the elongation of each fiber will be considerable before the tension on it is sufficient to overcome the squeezing action referred to. On the other hand, if small wires or threads are properly distributed within the rubber they will take the strain without much extension and therefore greatly reduce the tendency to form a bulge. It should be remembered that this bulge offers practically the same resistance to motion as does a stone of similar size

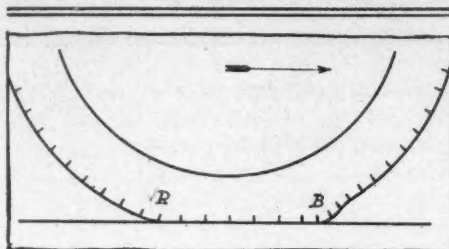


FIG. 1

over which the wheel is continually trying to roll.

Many will be surprised to learn that actual tests on electric vehicles have shown that with the same initial charge in the battery and other conditions remaining the same, a vehicle will go twice as far on one certain make of tire as on another, even though the dimensions of the two tires are the same. The difference is doubtless largely due to the fact that the one more nearly prevents the bulging action above mentioned than does the other.

With the same make it is found that when poorly inflated the resistance offered by the tire is considerably greater than when it is properly inflated. The tendency for the bulge to form is naturally greatest with the tire which flattens out the most, hence anything that decreases the degree to which the wheel sinks under load tends to reduce the resistance to rolling.

Owners Are Interested

In the eyes of most car owners, however, the matter of wear on tires is of more importance than the resistance offered by them. To indicate more clearly the action which causes the wear when a wheel is, to all intents and purposes, simply rolling along a smooth surface and neither skidding nor sliding in the commonly accepted term, let many marks, Fig. 1, be placed at small and equal intervals or spaces around the circumference or tread of the wheel before a load is put on it. When this wheel is rolled under load it is evident that in the neighborhood of B the bulge, or point where the tire first makes contact with the ground, the marks are, as shown

exaggerated, crowded close together on account of the squeezing action, whereas toward the rear R, or where the tire is leaving contact with the ground, the marks are farther apart, due to the stretching action on this portion in pulling the bulge in under the wheel. Since the marks are further apart when they leave contact than when they start contact it is clear that there must be a local slipping somewhere between the two points, B and R, hence wear at the same place.

Amount of Slip

The difference between the shortest and longest space while in contact with the road surface indicates the amount of slip which each particle gets per revolution. To be sure, this slip is exceedingly small, but since it occurs so constantly its effect is certainly worth considering. As it is the stretching of certain fibers which allows of the spaces varying in length, as was the case in forming the bulge referred to before, we find that any construction that tends to lessen the bulge and resistance to rolling also tends to lessen the wear from this source.

In the case of the rear tires, through which the tractive or driving effort is transmitted, the tension on these same fibers is increased by an amount equal to the propelling force, hence the local stretching and slipping also is increased. If too much force is applied the tire as a whole slips bodily and the wear increases accordingly. It also should be remembered that when slipping once is started it will continue until the tractive force is lowered to a value considerably below that at which slipping began. In the same way braking effort or side forces as experienced in rounding corners often cause considerable wear on tires.

Having explained in a more or less general manner the direct cause of tire wear, consider next some of the points in the design of the car which effects the tire problem.

Distribution of Weight

If a car were coasting all the time it is evident that the best distribution of weight, as far as the tires are concerned,

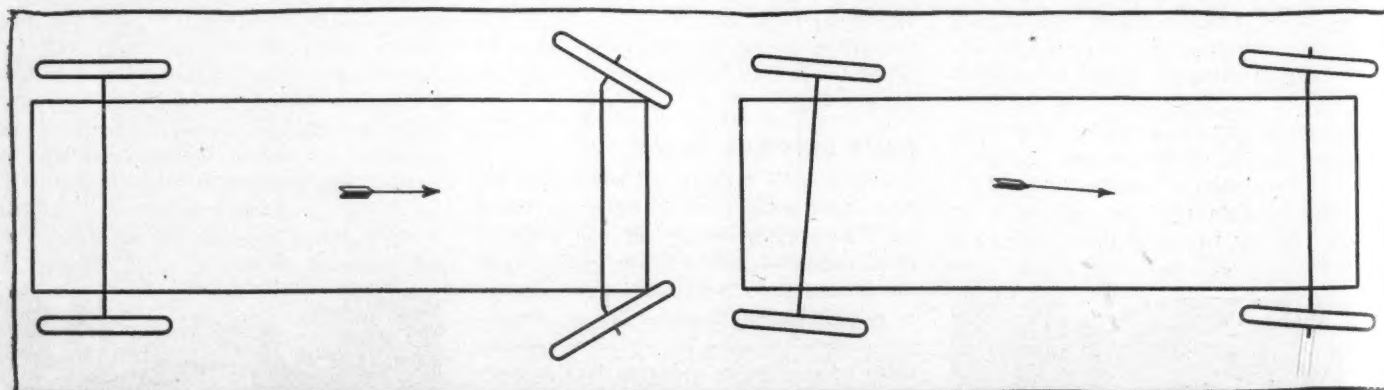


FIG. 2

FIG. 3

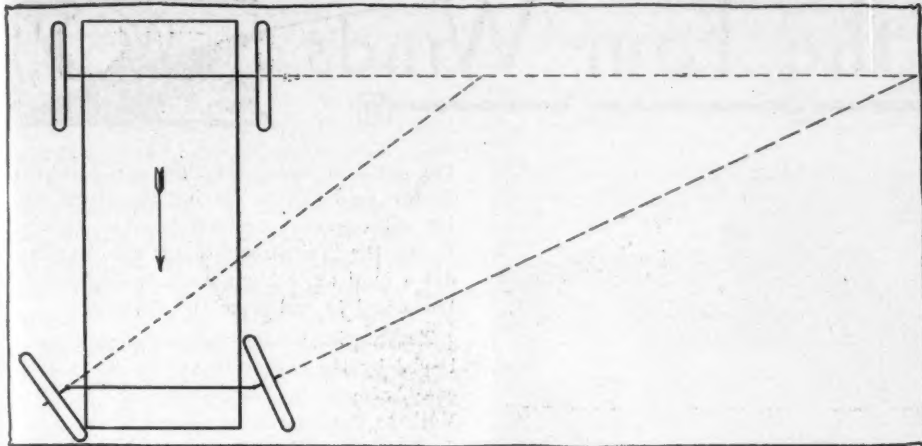


FIG. 4

is with equal loads on each wheel, thus evening the wear. This is not the normal condition, however, since the maximum effort which the rear wheel can exert either in driving or braking never is greater than a certain percent of the weight upon it, perhaps as low as 10 per cent under adverse conditions, the advisability of placing more than half the weight at the rear will at once be seen. The lack of sufficient weight at the driving wheels becomes most apparent in some of the very light and over-powered roadsters, where it is almost impossible to hold them to the highway when the throttle is opened wide on a level road. By throwing more weight on the rear wheels the wear is thus made greater than on the front ones, but it is not then equal to what it would be if the rear wheels were allowed to slip on account of not having enough weight upon them. If four-wheel drives and brakes become more common the chances are that the weight will be more equally divided among all the wheels.

The spring suspension of the vehicle and parts has much to do with determining the maximum and minimum loads on tires when going over rough roads, as does also any form of shock absorber. Were it not for the latter the wheels of some vehicles would practically leave contact with the ground on account of the rebound and thus cause the tires not only to slip and wear but perhaps start skidding.

The gain in the way of less wear and trouble with tires of increased diameter or cross section usually is considerably more than enough to offset the additional first cost. Here it is seen that either change will decrease the amount to which the tire flattens out under a given load, but increases the wearing surface; hence the gain.

Misalignment of Wheels

If trouble from misalignment is had, it usually is at the front wheels and is caused by too much toeing in. No attempt will be made here to discuss the advisability of this practice, but regardless of what advantages are claimed for it it is evident that if, while the car is running, the wheels stand as shown exaggerated in Fig. 2, they will not follow parallel paths unless the axle keeps crowding them apart and sliding them off their natural paths. This sliding, of course, is a constant cause of wear and in some cases is quite serious. In practically no cases does this trouble exist at the rear wheels.

In some instances, however, the entire rear axle is not at right angles to the frame, with the result that the car travels along with the rear of the car to one side, as shown in Fig. 3. On paved streets this has little effect on the tires unless through causing skidding. But on country roads where there are two distinct wheel ruts the result is about the same as with a wrong tread.

When the steering gear of the car is so designed that in turning a corner the axles of all four wheels do not pass through a common point, Fig. 4, it is evident that there must be slipping and consequently wear whenever a corner is turned. This is a feature which perhaps seldom need be considered by the owner or driver of a car.

Canting of Wheels

If a wheel is canted over to one side to any great extent as shown in Fig. 5, it is evident that in a certain sense the wheel may be considered as a portion of a cone and hence trying to roll in a circle about the apex of the cone as a center. Again it will be seen that while the diameter and circumference at the outer face of the wheel is less than that at the inner, both are forced to cover the same distance per revolution; hence slippage is inevitable. With the slight amount of cant given in practice, however, there is little doubt but that the advantage thereby gained in the way of easier steering, etc., far outweighs any disadvantages in the way of extra wear on tires that may be discovered.

The effect of tread upon tire wear depends largely upon the road or locality in which the car is being used. On country roads there are often two well-defined troughs or ruts formed by the wheels and it is evident that the distance between the bottoms of these ruts is determined by the tread of the majority of the vehicles which travel this particular road. There is still much difference of opinion as to whether the tread of a motor car should be the same as that of the ordinary carriage or wagon of the same locality, but regardless of whatever advantages different treads may offer in the way of facilitating turning out of the ruts, etc., it is sufficient to say that if the distance between the tire centers is different from the distance between the centers of the troughs or ruts, either one or both of the tires will be forced to roll continuously along the side of inclined portion of the rut, as illustrated in Fig. 6. The action on the tire is therefore the same as when the wheel is canted to one side, as discussed above and illustrated in Fig. 5.

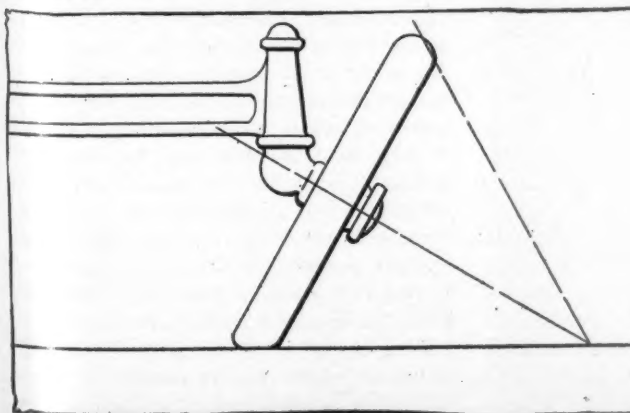


FIG. 5

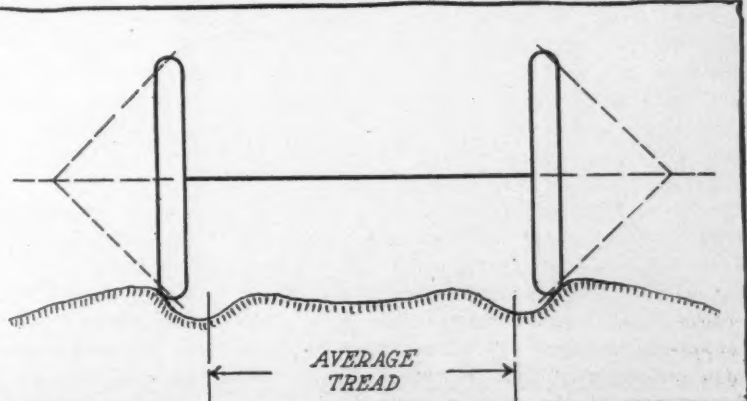


FIG. 6



From the Four Winds



HALLADAY MAKES GOOD DEMONSTRATION ON THE COAST

Reo Used by Hunters—J. J. Hansen, of Rio, Wis., finds that the two-cylinder Reo is a great aid to a sportsman and uses his car as a means of transportation on duck hunting trips. A photograph shows the results of 1 day's hunting.

Million For Roads—Contracts calling for an expenditure of nearly \$1,000,000 on the highways of New York state have been awarded by the state highway commission, which has determined to use a bituminous surface for the first time, this being the type of road which New Jersey has found so good for motoring.

Women Choose Officers—The annual election of the Quaker City Ladies' Motor Club resulted in the choice of the following officers to serve during the ensuing twelve-month: President, Mrs. Joseph J. Martin, Jr.; vice-presidents, Mrs. William Ingram and Mrs. Charles Snyder; secretary-treasurer, Mrs. H. B. Finck; board of directors, Mrs. Mary Martin, Mrs. Charles Murtha, Dr. Catharine Sweeney, Mrs. David Ward, Mrs. O. W. Schaum, Mrs. M. L. Wallace, Mrs. Richard Filbert, Mrs. C. Kugler, Mrs. Stoerr and Mrs. Herbert Reading.

Fees Help Jerseyites—Motor license and registration fees play a not inconspicuous part in fattening the New Jersey state treasury, and each succeeding year witnesses a comfortable increase over the preceding twelve-month. The receipts of the motor vehicle department for December, 1909, and January, 1910, were \$80,036.26—8,572 registrations and 6,781 licenses—as compared with a rake-off for the same months a year previous of \$57,594.85—6,254 registrations and 5,558 licenses—an increase of \$22,441.41—2,318 registrations and 1,223 licenses. These figures are all the more remarkable in view of the fact that for more than 5

weeks of the time included in the department's statistics the roads were blocked with snow, in many places being practically impassable, while the previous year saw comparatively good going throughout the period mentioned.

Great Western to Race—The Great Western is one of the latest converts to motor competition, it being announced that F. B. Thornburgh, a Wheeler & Schebler representative, will drive a Great Western 30 in track races and hill-climbs this season.

Organizes Salvage Corps—Herman Newman is organizing a salvage corps in Indianapolis and about twenty business concerns in the mile square already have subscribed toward its maintenance. Mr. Newman expects to place an order soon for a motor truck, which will be used for carrying tarpaulins and members of the corps to fires. Indianapolis has been without a salvage corps for several years.

Commission Has Maps—The Connecticut state highway commission is preparing maps of every town in the state, which will show the boundary lines of each town and will indicate the roads and grades within the towns. These drawings are being prepared from the latest topographical survey of the state and the greatest care is being taken to have them accurate.

Helps a Newspaper—Owing to the fact that street car traffic was tied up in Indianapolis for 3 days last week, owing to the heavy snow storm and blizzard, the Indianapolis News was compelled to resort to the exclusive use of motor trucks for delivering its 50,000 city circulation to the various sub stations and agencies over the city. The newspaper usually depends on street cars for this purpose. About fifteen gasoline trucks were used during the 3 days, supplied by the Buick Motor

Co., Premier Motor Mfg. Co. and National Motor Vehicle Co. During the storm and its subsequent interference with regular traffic, the taxicab and motor cab concerns did a land office business in taking people home and to and from the theaters.

Recent Sanctions—Sanctions have been issued by the contest board of the American Automobile Association for the New York to Boston run of March 5, the Altadena, Cal., hill-climb of March 19 and also the Oakland, Cal., hill-climb, which took place Tuesday.

Another Upkeep Contest—The Winton Motor Carriage Co. announces that it will promote its third annual upkeep contest for which drivers of Winton sixes are eligible. The affair starts April 1 and closes November 30 and \$2,500 in cash prizes will be distributed among the ten best drivers.

Drives on Lake Erie—General John C. Speaks, Ohio state game warden, has placed a motor car to an unique use during the severe snow storm recently. Having occasion to visit the state hatcheries at Put-in-Bay island, and the snow being too deep for an ice boat, a motor car equipped with chains was called into use and the trip made over the ice of Lake Erie in record time.

Portland Club's Progress—G. F. Beck, the well-known California road engineer, who was recently employed by the Automobile Club of California to lay out a system of roads in that state, will perform a similar work for the Portland Automobile Club, of Portland, Ore. Mr. Beck will have charge of measuring each road radiating out of Portland to scenic highways. Signs will be placed along these roads to inform the motorists of directions. W. J. Clemens has been named by President Wemme of the club as chairman of a committee to forward the proposed engineering scheme of mapping Oregon's scenic roadways.

Michigan's Roads—That Michigan roads will, under the present state system of improvement, eventually reach a state where they will no longer be a disgrace to the state which manufactures so large a percentage of the world's vehicles, is the belief of State Commissioner Townsend A. Ely, of Alma, who has just issued his annual report. Mr. Ely states that, since 1905, a total of \$381,455 has been expended by the state as rewards to the various counties for the construction of approved highways. Since July, 1909, 160 miles of approved road have been built, raising the total for the past year to 400 miles, of which Wayne county, in which Detroit is located, leads. The state awards each county \$1,000 per mile for stone

road, and adds other awards for permanent road improvements which represent, generally speaking, premium of about 25 per cent.

Beach Dates Announced—That there is a chance of the annual Ormond beach meet being renewed this year is shown by the announcement of the Florida East Coast Automobile Association, which states that its board of directors has selected March 22, 23, 24 for the speed carnival on the beach.

Motor Snow Plow—St. Louisians for the past week have for the first time witnessed a large electric snow plow in operation on the streets. It is owned by the Anheuser-Busch Brewing Co., and is used to clean the streets in the vicinity of the big brewery. The motor is of 45 horsepower and in three trips cleans the ordinary street from curb to curb.

Club Does Good Work—The Lehigh Valley Motor Club, of Allentown, Pa., did some excellent work during last year by thoroughly marking the road between Allentown and Lehigh, via Schneeksville and Slatington. No fewer than 153 signs were erected, indicating not alone the distances to terminals, but also giving warning of bad curves, railway crossings and grades.

Texas Association Formed—The Galveston Automobile Club has just joined with San Antonio, Dallas, Waco and Eagle Pass in the formation of the Texas Automobile Association. J. W. Munn and M. O. Kopperl, of the Galveston club, have been named on the board of directors of the state organization. It is expected that Houston, Fort Worth, Beaumont, Austin, El Paso and Temple will become members of the Texas association.

Mayors Interested in Roads—For the purpose of creating interest in a much-needed gravel road across the northern part of Indiana, Mayor Lemuel L. Darrow, of Laporte, entertained at dinner in South Bend Mayor Charles L. Goetz, of South Bend; Mayor Lawrence Becker, of Hammond; Mayor Thomas E. Knotts, of Gary; Mayor Spohn, of Goshen; Mayor Smith, of Rochester, and Mayor John A. Herzog, of Mishawaka. "What is needed," said Mayor Darrow, "is a good gravel road across the entire northern part of the state. This is one of the main highways for motor and similar traffic between New York and Chicago, as well as between the principal cities of northern Indiana, and it is of prime importance that the road bed be of such substantial character as will insure the safety and easy transit of vehicles using it. West of Laporte there are several stretches of road which have been macadamized or repaired with other standard material, but east of that place the road is made of dirt. As everyone knows, a dirt road bed in rainy weather or during the winter becomes almost unfit for traffic of any kind, and I believe the people of northern Indiana

THE MINOR SHOW CIRCUIT

FEBRUARY

| | |
|--------------------|------------|
| Minneapolis, Minn. | 19-26 |
| Newark, N. J. | 19-26 |
| Los Angeles, Cal. | 19-26 |
| Cleveland, O. | 19-26 |
| Salt Lake, Utah | 19-26 |
| Cincinnati, O. | 21-26 |
| Portland, Me. | 21-26 |
| Binghamton, N. Y. | 21-26 |
| Omaha, Neb. | 21-26 |
| Baltimore, Md. | 22-26 |
| Milwaukee, Wis. | 22-27 |
| Denver, Colo. | 23-26 |
| Toronto | 24-March 3 |
| Kansas City, Mo. | 28-March 5 |

MARCH

| | |
|-------------------|------------|
| Sioux City, Ia. | 1-5 |
| Boston, Mass. | 5-12 |
| Cleveland, O. | 5-12 |
| Des Moines, Ia. | 5-12 |
| Albany, N. Y. | 7-12 |
| Des Moines, Ia. | 7-12 |
| Syracuse, N. Y. | 12-19 |
| Cedar Rapids, Ia. | 14-19 |
| Louisville, Ky. | 17-19 |
| Pittsburg, Pa. | 26-April 2 |
| Montreal | 26-April 2 |

APRIL

| | |
|-------------|-------|
| Bangor, Me. | 23-29 |
|-------------|-------|

would appreciate the building of a gravel highway across the state."

Start a Club—Owners of Jefferson county, Wisconsin, have effected a temporary organization. Officers will be elected at the permanent organization meeting to be held within 2 weeks.

Indians and Convicts Work—Twenty-five Pueblo Indians from Cochiti and twenty convicts from the territorial penitentiary have been put to work on La Bajada hill, the heaviest piece of road work on the scenic highway from Santa Fe to Albuquerque, N. M., which is now under construction.

Starts Membership Campaign—"Five hundred members by May 1," is the slogan of the Columbus Automobile Club, of Columbus, O. At a recent meeting an active campaign for members was started and with the adoption of the new constitution and by-laws, at a meeting to be held soon, it is expected that many applications for new members will be received. The publication of the bulletin, a monthly organ of the club, will be revived under

the name of the Columbus Motorist. Since the selection of Arthur M. Crumrine as assistant secretary new life has been injected into the organization and much is hoped for in the future.

Halladay Turns a Trick—An interesting performance of a model J Halladay is recorded in Los Angeles, Cal., where twenty-seven school children, weighing approximately 2,700 pounds, were loaded into a truck weighing 3,250 pounds and the Halladay pulled the load easily through the streets of the town, running all the time on high gear.

Sage Brush Road—Sage brush near Kennewick, Wash., is being put to an entirely new use, that of road-building, and so far has proved a great success. It is found that sagebrush placed in the road is readily crushed to a pulp and forms a perfect mat. By mixing with earth it becomes firm, dustless and noiseless and gives promise of long wear.

Chamber of Commerce Helps—The chamber of commerce of Aberdeen, Wash., has issued bonds to the amount of \$250,000 to build three proposed highways, one to the Quinalt country, one to Westport and another from Elma to the Thurston county line. The roads will open to Grays harbor a great stretch of fine agricultural country. The road to Westport will give a motor road to South Pacific beach.

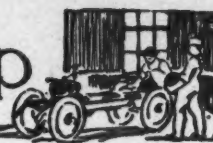
New Motor Bus Line—As soon as the weather moderates three gasoline motor buses, each carrying fourteen passengers, will be put to work on the Bustleton pike, between Frankford, Bustleton and Somerton. These Philadelphia suburbs have long felt the need of better transportation facilities, and having unsuccessfully endeavored to induce the Rapid Transit Co. to establish a trolley line along the pike, a company was formed with a capital of \$15,000 to operate a line of motor buses. At the beginning the vehicles will be run at 1-hour intervals. Those behind the project are Frank Deere, Francis P. Moitz and George T. Sale.



RESULTS OF 1 DAY'S HUNTING IN A RES



The Motor Car Repair Shop



IMPORTANT parts of a motor car which often are neglected when the car is generally overhauled are the waterjackets of the motor, and the radiator. Radiators usually are tested for leaks and the packing of the pump and rubber hose-connections may be renewed, but this is about all the attention the cooling system receives. This, however, is not enough. A radiator and the waterjackets as well should be treated for scale, rust or other foreign matter which perhaps adheres to the inner walls of the jackets and tubes. A generous deposit of scale or grease may be present in the cooling system without noticeably inhibiting the water circulation, and by simply pouring a couple of pailfuls of water through the radiator as a test one is not apt to learn a great deal regarding the condition of its internals. If alkali incrustations are suspected in a radiator, the radiator should be removed, completely drained out and then placed near a stove, steam-radiator or furnace, where it will be thoroughly dried out. This drying out process tends to cause any alkali incrustations present to crack and scale. The radiator then should be inverted and a stream of water forced through it in the opposite direction in which it generally flows. If this does not do the trick use wood alcohol, which, it is claimed, is a solvent for most alkaline deposits. Alcohol, however, will not dissolve deposits of lime, and if the deposits are of this nature there are remedies on the market, known as boiler-compounds, that may be used to advantage for this purpose. Vinegar, which contains about a 5 per cent solution of acetic acid, also is recommended. If this is not strong enough, a 10 per cent solution of acetic acid may be purchased from any dealer in drugs at a cost of about 40 cents a gallon. This should be poured into the radiator and the motor allowed to run for about half an hour, so that it will be thor-

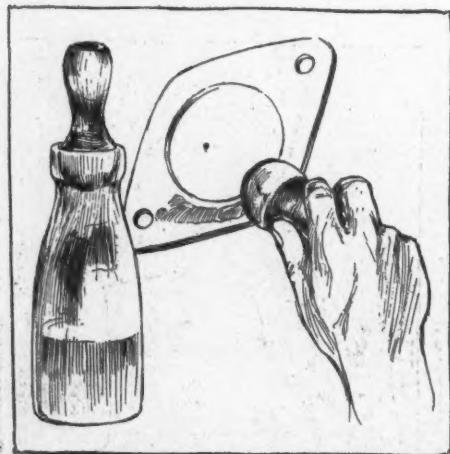


FIG. 1—HANDLING SHELLAC

Hints for the Amateur

oughly circulated, after which it must be drained out and the system rinsed out in the same manner with either distilled or pure rain water.

Hint on Handling Shellac

Every motor car repairman is thoroughly familiar with the use of shellac as a means of securing an oil-tight joint, and perhaps no substance is more commonly used for this purpose when the joints to be made are between the sections of a crankcase of a motor, or the gear-cases of transmission or rear axle mechanisms, etc. It also is a well-known fact that it is a dirty, sticky substance to handle, owing to the fact that means rarely are provided so it may be used without its getting on the hands, where it dries quickly, and is most difficult to remove. If a bottle or can of shellac is to be prevented from drying up, the receptacle in which it is kept must be corked up when not in use; and if a brush is employed in its application it must be adjustably mounted in the stopper, or removed and carefully cleaned with alcohol or varnish-remover immediately after its use, otherwise the varnish will dry upon it and render it as useful as a stick. A stick, by the way, is the most common means of applying shellac in the motor car repair shop. There is a better method, though, which is now employed in one shop. It consists of a wooden stopper which is hemispherical or egg-shaped, with a handle, as shown in Fig. 1. When a workman wishes to spread a coat of shellac upon a gearcase cover, or a gasket, he has but to invert the bottle with the stopper in place, then remove the stopper and roll the large end over the surface to be smeared, and a coat of shellac is left in its wake. The handle and the hands may be kept clean, no cleaning of brushes is required and there is no waste of shellac.

Making Gaskets

Perhaps one of the first lessons the young repairman is taught on entering a shop is that of making gaskets. The gaskets between the bases of the cylinders and the crankcase generally are made by stretching the drawing or wrapping paper, commonly used for this purpose, over the mouth or base of the cylinder, and then while holding the paper firmly in place with one hand the other operates a ball-pein hammer as shown in Fig. 2. The round end of a light hammer should be employed in this operation, and the gasket is cut out by lightly tapping the sharp edges of the cylinder base through the paper. This method often is erroneously

employed in making gaskets for aluminum parts; and as aluminum is very soft, the edge generally is broken down after the first gasket is made, the paper does not cut so readily, more hammering is required, the area of the contact surface is reduced and the joint is thus more difficult to render oil-tight. To make a gasket for an aluminum case, the paper should be pressed over the bolt-holes and edges so that an impression is made that can be clearly seen; the gasket then can be readily cut out with a pair of scissors or a knife in much less time than could be done with a hammer. Lead, copper and asbestos gaskets for flange connections of the water and gas manifolds can be made easily with a peining hammer as mentioned above, but rubber gaskets are more easily cut with a knife. In making gaskets from wire asbestos sheet packing the hammer cannot be used to advantage, and it is advisable to cut out gaskets of this material with a pair of tin-snips, or an old pair of scissors.

Maintenance of Magnetos

The armature shafts of most magnetos are fitted with ball bearings at both ends, so very little lubrication is required, and a few drops of oil properly applied to the proper place, about once or twice a month, generally is all the attention they need. The places on a magneto where the oil is applied varies with the type of the magneto, and it is advisable that the operator who is not thoroughly familiar with their location should confer with the dealer in his locality, or the manufacturer of his magneto, and be informed as to their whereabouts. Although these bearings require very little lubrication, they do not thrive on none. It is also necessary that all other parts be kept free from oil, especially the contact breaker, which is designed to work without it, and every precaution should be taken to prevent oil from getting onto the contact breaker.



FIG. 2—MAKING GASKETS

Current Motor Car Patents

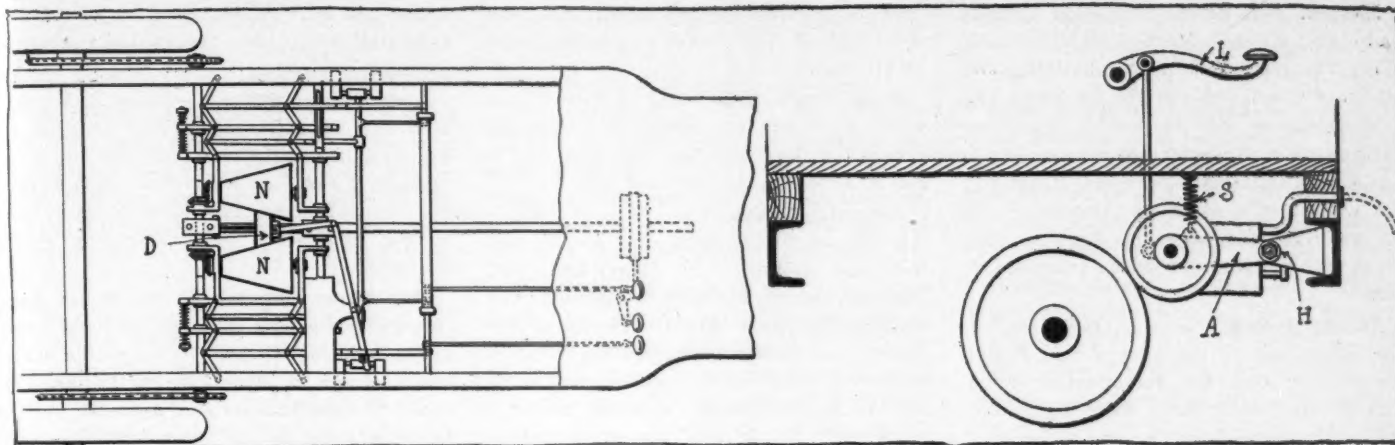


FIG. 1—WAITE FRICTION TRANSMISSION SYSTEM

FIG. 2—BASTION MOTOR CAR TIRE PUMP

Friction Transmission for Motor Vehicles—No. 948,749, dated February 8; to James F. Waite, Cleveland, O.—The friction transmission, Fig. 1, comprises a tapered driving member D, interposed between two longer and respectively tapered driven members N. Means are provided for moving the driving member longitudinally with respect to the driven members, which, together with their driving pinions, are supported on frames that operate transversely. Power is transmitted from the central member D to the side members, then through bevel gears to jackshafts.

Tire-Pump for Motor Vehicles—No. 948,807, dated February 8; to Martin L. Bastian, Philadelphia, Pa.—The patent refers

to a pump for inflating tires, which is attached to a side member of the frame, opposite the flywheel, off of which it is driven. The pump itself is of the piston type with high and low-pressure cylinders. These, as well as the rest of the operating mechanism, are attached to a supporting arm A, which is hinged to the frame.

Motor Car Steering Mechanism—No. 948,800, dated February 8; to Robert Symonds, Jr., Kenosha, Wis.—This steering gear is of the worm-and-nut type. By turning the hand-wheel H, Fig. 6, the shaft S and the worm W, which are all rigidly connected and act as a unit, the nut N moves up or down according to the direction in which the wheel is turned, and, in so doing, operates the bell-crank L, which is fulcrumed upon the casing at the point F.

Electric Cable Connection—No. 948,563, dated February 8; to William J. Littlehales, New Britain, Conn.—In this cable connection Fig. 4 the resilient movable jaw RJ, which is pivoted to the stationary jaw SJ at the point A, is designed to hook around a terminal as illustrated; and it has a cam-shaped projection or dowel-pin P, which when the jaws are closed enters a recess in the stationary jaw.

Sectional Bolt—No. 948,559, dated February 8; to Eugene Fongalloz, Norwood, Mass.—This bolt, Fig. 5, consists of two

bars B and B1, each semi-circular in cross section, which are adapted at their outer ends to receive a nut or the like, and are spread apart at their inner ends to form a beveled head, a strut S for holding the inner ends of the two bars apart being formed by so bending the end of B1.

Multiple-Jet Carbureter—No. 948,612, dated February 8; to Richard E. Krause, Cleveland, O.—The patent applies to a carbureter of the float-feed, venturi-tube type, but with several upright spraying nozzles. These nozzles are paced around the circumference of the float chamber, and each is surrounded by a mixing tube communicating with the bottom of the common mixing chamber.

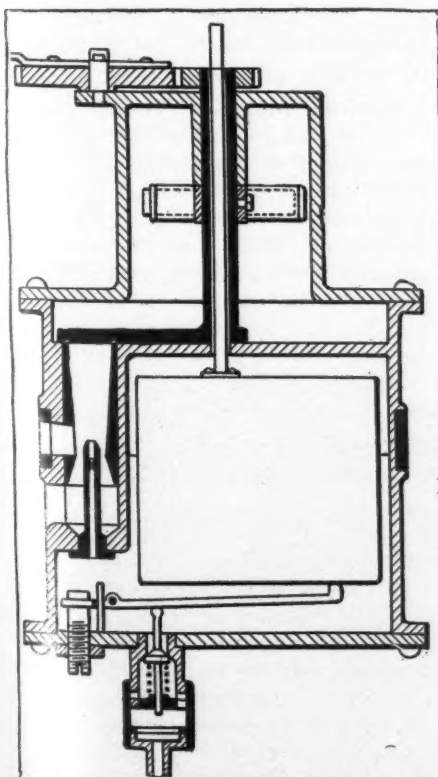


FIG. 3—KRAUSE'S CARBURETER

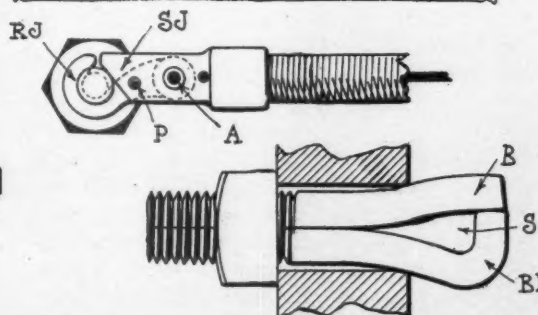


FIG. 4—CABLE CONNECTION

FIG. 5—SECTIONAL BOLT

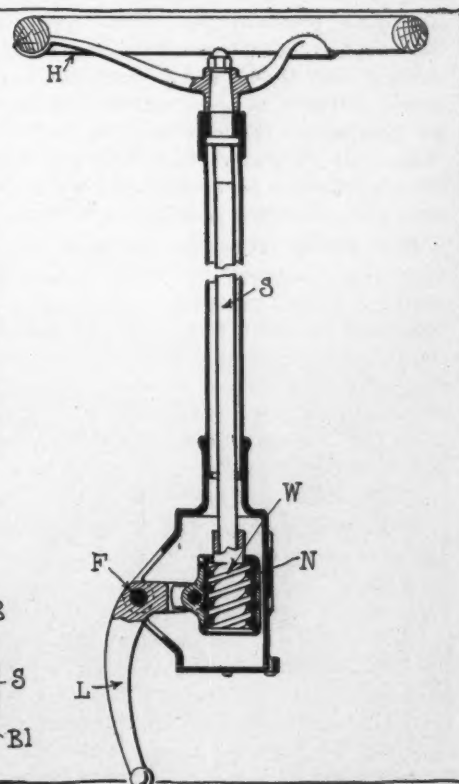


FIG. 6—STEERING GEAR



Among the Makers and Dealers



Hoaglin Will Build—The F. S. Hoaglin Auto Co., 235-237 Main street, Oshkosh, Wis., has purchased a fine building site on State street and will erect a 60 by 150-foot garage as soon as weather permits.

Locating at Fremont—Announcement is made that the Lauth-Juergens Motor Car Co. will erect a plant at Fremont, O., to be ready for occupancy by April 1. The plant will manufacture trucks and pleasure cars.

Toledo Events—The Gamble Motor Car Co. has taken on the agency for Winton six-cylinder cars for northwestern Iowa. The Norris-Toledo Motor Sales Co., of Toledo, this week closed a deal whereby it accepts the agency in Toledo territory for the Warren-Detroit.

Making Light Delivery Wagon—The newly organized Owosso Motor Co., of Owosso, Mich., has built an experimental car. It is a light delivery wagon and 350 of them will be made this season. The company, which will soon occupy its factory here, is capitalized at \$200,000.

Mobile's Latest—Mobile, Ala., has a new garage, built by Ross Motor Co. Alfred G. Ross is the manager. He also is secretary of the Mobile Automobile Club and vice-president of the Alabama Automobile Association. The company will handle Moore pleasure cars and Rapid commercial trucks.

Another Overland Building—Another large building is to be added to the Indianapolis plant of the Willys-Overland Co. It will be a two-story brick structure, giving 10,000 square feet of floor space, and will be used for the grinding of camshafts. The new building will be located at Fifteenth street and the Big Four tracks and its erection will start as soon as the weather permits.

New Buffalo Concern—The Auto Battery and Electrical Co. with a capital stock of \$20,000 has filed a certificate of incorporation in Buffalo. The directors are Theodore P. Meinhard, Charles B. Bleyer, Montford Ryan, Charles H. Fisher, William C. Moore and William J. Rosenblatt, of Buffalo; Charles and William Rosenblatt, of New York city, and Charles S. Chamberlain, of Evansville, Ind.

Hawxhurst Changes—M. B. Hawxhurst, until recently Chicago manager of the Remy Electric Co., has become general sales manager for the Webster Electric Co., of Tiffin, O., with general offices at 1645 Old Colony building, Chicago. The Webster company manufactures the Webster-Milton magneto and other ignition apparatus, the magneto being somewhat of a departure from the conventional type, one of its principal features being that it

runs at one-half engine speed and that it is claimed it furnishes a constant spark at all speeds.

Adds Truck Line—The Gramm-Logan motor truck has been added to the already diversified line handled by the H. L. Keats Auto Co., of Portland, Ore.

Bergdoll Moves—The Bergdoll Motor Car Co., of Philadelphia, has moved into the big building at Thirty-first and Dauphin streets, formerly occupied by the Philadelphia Auto Transit Co. as a bus station and garage. A complete outfit of machinery for turning out the new Bergdoll 30 is now being installed, and the plant will be in full operation before March 1.

Dietz Included—The regulations issued July 24, 1909, by the treasury department at Washington providing for the allowance of drawback on acetylene gas lamps manufactured by the Badger Brass Mfg. Co., of Kenosha, Wis., with the use of imported tips and tip holders, have been extended to cover the exportation of motor car lamps manufactured by R. E. Dietz Co., of New York, with the use of imported tips and tip holders.

Houk Made a Manager—George W. Houk has been appointed manager of the Boston branch of the Olds-Oakland company. He went to England in 1890 and introduced the coaster brake successfully and later imported Stanley steamers there for 3 years. Next he tackled the gasoline proposition with much success. Mr. Houk came back to America last fall and secured a position with the Alvan T. Fuller company in Boston, handling the Cadillac in that territory.

Motors to the Rescue—When the boiler of the Flint Electric Co. plant at Flint, Mich., became disabled recently and caused the shutting off of the current for several days, that portion of the Buick factory depending on the electric company for power was forced to be idle for a short time. Motor car engines, however, were forced into service and the individual machines in this portion of the plant were operated by the motor car engines for several days.

Hoosiers Prepare for Show—The entertainment committee of the Indianapolis Automobile Trade Association, of which Frank Staley is chairman, has decided to invite A. G. Batchelder to be the principal speaker at a banquet to be given by the association. The banquet will be held on Saturday night, closing the annual motor show in Indianapolis, which begins March 28. Mr. Batchelder is chairman of the executive committee of the American Automobile Association. Members of the

I. A. T. A. have raised \$2,400 by voluntary subscriptions to meet the mutual expenses during show week.

Long Tour in Pullman—James E. Morse, who has been making a long tour in a Pullman in the interests of the factory, reached Boston last week with the car. He has covered more than 9,000 miles in it, having been south before invading New England.

Has Three Garages—P. C. Meves has enlarged his garage at Tama, Ia., and now has a building 80 by 150 feet. He also has a garage at Marshalltown, Ia., and is about to open another one at Cedar Falls, Ia. Operating as the Tama Auto Co., the concern is a distributor for central Iowa for the Moline and the Rider-Lewis.

Janesville Gets Monitor—Janesville, Wis., business men have practically subscribed for the entire \$50,000 stock issue, one of the conditions for the removal of the plant of the Monitor Automobile Co., of Chicago, to Janesville. A three-story building, 132 feet long by 73 feet wide, containing 38,544 square feet of space, will be the new home of the company at Janesville.

New Firestone Agencies—The Firestone Tire and Rubber Co. announces the establishment of the following new distributing agencies for Firestone tires and demountable rims: Central City Rubber Co., 129 East Water street, Syracuse, N. Y.; Shuler Rubber and Supply Co., 345 Baronne street, New Orleans, La.; Chesapeake Tire and Rubber Co., 202 St. Paul street, Baltimore, Md.

Knocking Out the Trolley—Gasoline motor cars as a substitute for trolley cars on all night service probably will be installed on the Omaha and Council Bluffs street railway. The company has entered negotiations with the Fairbanks-Morse company for the building of a number of gasoline motor cars for owl service. The gasoline cars will result in a saving of expense, inasmuch as the costly power plant which operates the cars when traffic is heavy will not have to be used for the meager owl service.

Want Motor Mail Service—Bids for the transfer of mails from the depots to the postoffice by horse and wagon, producing what the postoffice department believes is exorbitant figures, negotiations are now being made for a motor mail service between the railway stations and the postoffice. In view of the high bids for horses and wagons, the department at Washington has sent a representative to Omaha to confer with tradesmen to induce them to make bids for motor delivery of the mails. Postmaster Thomas is of the opinion that,

should the dealers care to bid for the contract, that it will be only a short time before motor delivery of mail will become general in Omaha.

Havill Will Build Motors—A plant for the manufacture of gasoline motors is being erected at Portland, Ind., by W. F. Havill, who expects to incorporate a company when the building is completed.

Holdredge Changes—Carl Holdredge, formerly sales manager for the Stromberg carburetor, has changed positions, becoming secretary and sales manager of the Ideal Electric Co., of Chicago, a new concern which is manufacturing the Ideal electric.

Will Sell the Velie—P. C. Anderson, of Holdredge, Neb., is organizing a stock company to sell the Velie motor car to the trade of western Nebraska and northern Kansas. The new firm will take temporary quarters in the Newlander building. Local capitalists will be interested in the company, which will do business under the name of the Western Automobile Co.

Another for Battle Creek—Battle Creek, Mich., has landed another \$1,000,000 industry, the latest addition to the manufacturing industry being the plant of the Michigan Motor Truck Co. This company has purchased 8½ acres, including two large factory buildings. Machinery will be installed at once and as soon as the weather permits additional buildings will be erected. The company will build five sizes of motor trucks.

Bump Joins Owen—The sales manager of the new Owen Motor Car Co. of Detroit is to be F. R. Bump, who for the past years has been connected in a similar capacity with the H. H. Franklin Mfg. Co., of Syracuse. He will take up his work with the Detroit company at once. Upon the announcement by him of his intention of leaving Syracuse a banquet in his honor was given at the Yates hotel by the Retail Automobile Dealers' Association of that city, of which he has been a director. The presiding officers on that

occasion was C. A. Benjamin, who had been his predecessor as sales manager of the Franklin company.

Leases Reinig Building—The Briggs Electric Co., of Fond du Lac, Wis., has leased the Reinig building on Portland street and will fit it up for stock rooms and repair shop.

Will Build in Indianapolis—Samuel E. Rauh, president of the Union Stock Yards Co., Indianapolis, is preparing to build a garage in that city. It will be erected at Sixteenth and Alabama streets, will be a two-story brick structure and will cost about \$10,000.

Drawback Allowed—A ruling has been made by the treasury department at Washington to the effect that on the exportation of motor car transmission cases manufactured by the Brown & Sharpe Mfg. Co., of Providence, R. I., with the use of unfinished cases, gears, shafts and bushings, a drawback will be allowed equal in amount to the duty paid on the imported material so used, less the legal deduction of 1 per cent.

Warner's New Building—The Warner Instrument Co., of Beloit, Wis., is erecting a large addition to be devoted to the shipping, plating and polishing departments. The present shipping department will be added to the brass and aluminum foundry. Under this arrangement the company will produce all of its materials. The Warner Instrument Co. held a convention of branch office managers at the plant in Beloit, Wis., last week.

Apperson Change—The interests of the Joseph F. Gunther Co., of Chicago, have been taken over by the Apperson Motor Car Co. This was made necessary owing to the large capitalization required to conduct the business on a large scale and give better service. The Apperson Motor Car Co. is now a branch and a large building is now being erected at Thirty-third street and Indiana avenue, where a much larger stock of cars and parts will always be on hand, together with a well-equipped repair shop and a force of the

mechanics. Mr. Gunther will remain in charge and handle the business as formerly.

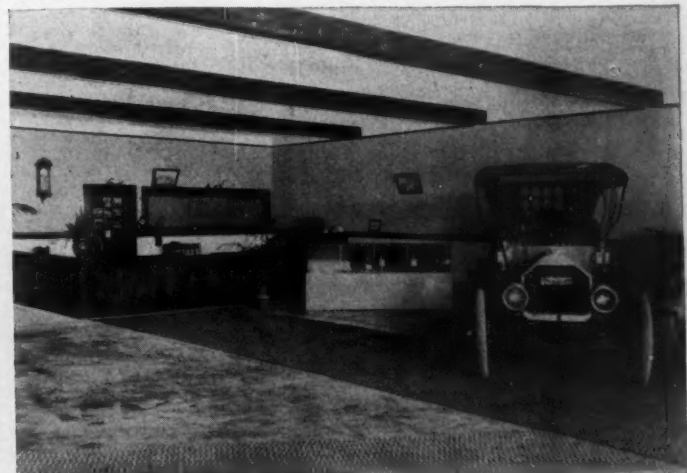
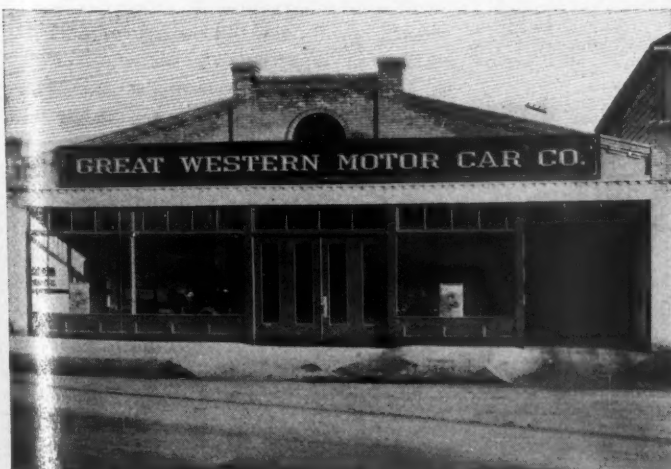
Brodhead Company Organized—The Brodhead Motor Car Co. has been organized by business men at Brodhead, Wis., to erect a factory for the production of 40-horsepower car for the 1910 market.

After a British Concern—A movement is on foot by local interests to bring to this city a British concern engaged in the manufacture of motor car parts. The local board of trade offers every encouragement to motor industries.

Handles Great Western—The Great Western is handled on the Pacific coast by the Great Western Motor Car Co., 1130 South Olive street, Los Angeles, Cal. This concern has just moved into its new building, and the business is owned and managed by H. O. Vogel.

New Milwaukee Agencies—New agencies established in Milwaukee just prior to the Milwaukee Automobile Club's second annual show, which opened Tuesday evening, are as follows: Babcock electric, with Franklin Automobile Co.; Courier, McDuffee Automobile Co.; Empire, Modern Motor Co.; Fuller, Gove Automobile Co.; Haynes, Schreiber Motor Car Co.; Mercer, Willard V. B. Campbell; Ohio electric, McDuffee Automobile Co.; Staver, Stephenson Motor Car Co.; Warren-Detroit, J. L. Kunz Machinery Co.

Wisconsin Appointments—The Superior Motor and Machine Works, Superior, Wis., has been appointed a district agent for the Franklin. The Mitchell will be handled in the vicinity of West Bend, Wis., by Meyer Brothers, of that city. George W. Burkert, Seventh and Wisconsin streets, Racine, Wis., has been appointed district agent for the Overland. W. H. Stewart of Delavan, Wis., is a new district agent for the Reo in Wisconsin. The Thomas Flyer has been taken on by the Lucia Brothers Motor Car Co., of Green Bay, Wis., with a branch of the concern located at Oconto, Wis.



EXTERIOR AND INTERIOR OF STORE OF GREAT WESTERN MOTOR CAR CO. AT LOS ANGELES, CAL.

Brief Business Announcements

Portland, Ore.—Will Mechan is the new agent in Portland for the Kissel.

Whitehead, Mont.—The Jefferson Valley Auto Co. has been appointed agent for the Ford in this locality.

San Francisco, Cal.—W. M. Root has opened a garage and salesroom on Golden Gate avenue, where he is to represent the Pierce-Racine.

Seattle, Wash.—Fred Powell, formerly sales manager for the Seattle branch of the Packard agency, has opened the Seattle Automobile Exchange.

Tacoma, Wash.—The Ford Motor Agency, of Tacoma, is the latest concern to start business in this city. It is owned and managed by F. P. Swinson.

Seattle, Wash.—H. C. Harris and S. G. Brown hereafter will handle the Buick in Seattle, occupying a portion of the Winton Motor Carriage Co.'s new building at Pike street and Terry avenue.

Seattle, Wash.—Emmett Harris and A. C. Stevens, of Seattle, have formed a co-partnership under the name of the Stearns Motor Car Co. A concrete one-story garage, office and salesroom, 60 by 120, will shortly be constructed at Pike and Broadway.

East St. Louis, Mo.—Work on the new garage of the East St. Louis Automobile Co., which will be located at 709 to 711 Missouri avenue, has been recommended after a delay. The building will be concrete, two stories high and 50 by 100 feet in size.

Springfield, O.—The Yost Gearless Motor Co. has been reorganized and is talking over the advisability of erecting a new plant. G. L. Miller has bought out the interest of William Hope in the company and is to continue as manager as well as secretary and treasurer.

Bushnell, Ill.—Ball Brothers, of Bushnell, have awarded the contract for building their new \$7,000 garage. It will be 60 by 60, two stories high and without a support on either floor. The building will be of concrete and will be fireproof throughout.

Pueblo, Colo.—Kenneth F. Parker and Cyrus F. Taylor, Jr., have formed a partnership. They have decided to open a garage and salesroom for the repairing and sale of second-hand cars. They have leased an establishment at 418 Santa Fe avenue and will start in business at once.

Atlanta, Ga.—Negotiations are now under way for the consolidation of the White Star Automobile Co. with the Atlanta Motor Car Co., a new organization which is to engage in the manufacture of motor cars and trucks on a large scale. The new company has a capital of \$100,000,

with the privilege of increasing it to \$1,000,000.

Macon, Ill.—E. E. Brooks has closed for the Macon county agency for the Billy.

Seattle, Wash.—Fred Fishbeck now has the agency for the Inter-State and Chadwick, and has announced the relinquishing of the Oakland agency.

Moline, Ill.—The Midland Automobile Co. has secured a large building owned by the American Harvester Co. and is using it for storing cars for the early spring trade.

Kewanee, Ill.—The large addition which was built to the Kewanee garage has been completed and is now open. The garage is capable of sheltering thirty machines and has a complete machine shop.

Brooklyn, N. Y.—The Kenny Motor Car Co., of Brooklyn, which is to represent the Rambler in this borough, had its formal opening of its new building at Bedford avenue and Sterling place on February 12.

Cleveland, O.—The Cleveland Speedometer Co. is a new concern, backed by local capital, which is to engage in the manufacture of speed indicators. The company has established offices and salesrooms on Euclid avenue, near East Eighteenth

street, under the management of A. A. Grimes.

Jefferson City, Mo.—The Haynes Automobile Co., of St. Louis, has been incorporated with a capital stock of \$5,000.

Indianapolis, Ind.—The Airless Tire Co., of this city, has filed a notice of the increase of its capital stock from \$225,000 to \$250,000.

Seattle, Wash.—Ira D. Lundy, agent for the Stoddard-Dayton, has accepted the Courier agency and is located at Nineteenth and East Roy streets.

Atlanta, Ga.—Steinhauer & Wright, Inc., has been incorporated with a capital of \$10,000 and is to manufacture and deal in motor cars and supplies.

Taylorville, Ill.—The Christian County Automobile Co. has been incorporated by Ernest Hoover, G. F. Shumway and E. W. Davis with a capital stock of \$2,500. The incorporators are president, secretary and treasurer, respectively. Howard Parker is manager of the company.

Rock Island, Ill.—The Totten Automobile Co. has been granted papers of incorporation. The capital stock is \$10,000. W. C. Totten is president and general manager; Frank Lynch is vice-president; M. L. Totten is secretary, and Elbert G. Don is treasurer. The company is starting on its second year.

Peoria, Ill.—Two new machine shops are under construction by the Bartholomew Co., of Peoria, manufacturer of the Glide. Both structures are one-story high and of brick. One is 100 feet long and 40 feet wide. The other is 200 feet long, 226 feet wide at one end, tapering down to 100 feet wide at the other.

Seattle, Wash.—A. E. Foss has recently accepted a position with the Seattle Studebaker branch as garage superintendent. W. F. Plastine, formerly of Cleveland, O., comes to Seattle with the Studebakers and will have charge of the electric department. C. S. Mantell is manager of the motor car department.

Seattle, Wash.—The Winton Motor Carriage Co., of Seattle, recently closed with M. A. Rickard, at Corvallis, Ore., an agency contract whereby he will hereafter represent the Winton six in that part of the Beaver state. Mr. Rickard has also accepted the agency for the E-M-F cars in Benton and Linn counties, Oregon.

Detroit, Mich.—The Keeler-Hupp Co., local agent for the Hupmobile, has leased the building at 730 Woodward avenue, formerly occupied by the Auto Commercial Co., and will move in at once. Harry Nederlander, who for the past year has been connected with the Brush-Detroit Co., has contracted with the Keeler company.

RECENT INCORPORATIONS

New York—Boyd Steel Springs Co., capital stock \$10,000; to manufacture and deal in steel springs, motor car and machine parts. Incorporators, H. B. Boyd, C. A. Cook and A. R. Boyd.

New York—Hermann J. Kumberger, capital stock \$2,000; to engage in the manufacture and also deal in gas and gasoline engines, machinery of all kinds and motor boats; incorporators, H. J. Kumberger, J. H. Taylor and A. A. Meeker.

Morristown, N. J.—Eastern Krit Sales Co., capital \$100,000; to manufacture, repair and deal in motor vehicles; incorporators, V. A. Wise, T. H. Wise and W. G. Hurtzitz.

Rochester, N. Y.—Edward F. Higgins Livery, capital stock \$150,000; to engage in a general livery and motor car business; incorporators, Bridget and Emily M. Higgins and Alice M. Miller.

Glen Falls, N. Y.—Auto Service Co., capital stock \$50,000; to deal in motor cars and supplies; incorporators, C. H. Peddick, Jr., G. Tait and B. G. Higley.

Houston, Tex.—Houston Taxicab Co., capital stock \$10,000; incorporators, E. F. Dupree, B. F. Davison and D. E. Simmons.

Dayton, O.—Geyer Scales Co., capital stock \$10,000; to engage in the manufacture of accessories.

Bridgeport, Conn.—Rantz Motor Co., capital stock \$25,000; to engage in the manufacture of motor cars and parts. F. A. Rantz, president; G. Langdon, vice-president; A. Wood, secretary and treasurer.

New York—Bronx Taxicab Co., capital stock \$500; to manufacture and rent taxicabs, motor vehicles, etc.; incorporators, H. L. and G. H. Hill and M. Monfed.

Jamestown, N. Y.—Lilly Engine Co., capital stock \$150,000; to manufacture and deal in motor cars, motors and motor cycles; incorporators, C. H. Henderson and J. R. Graves.